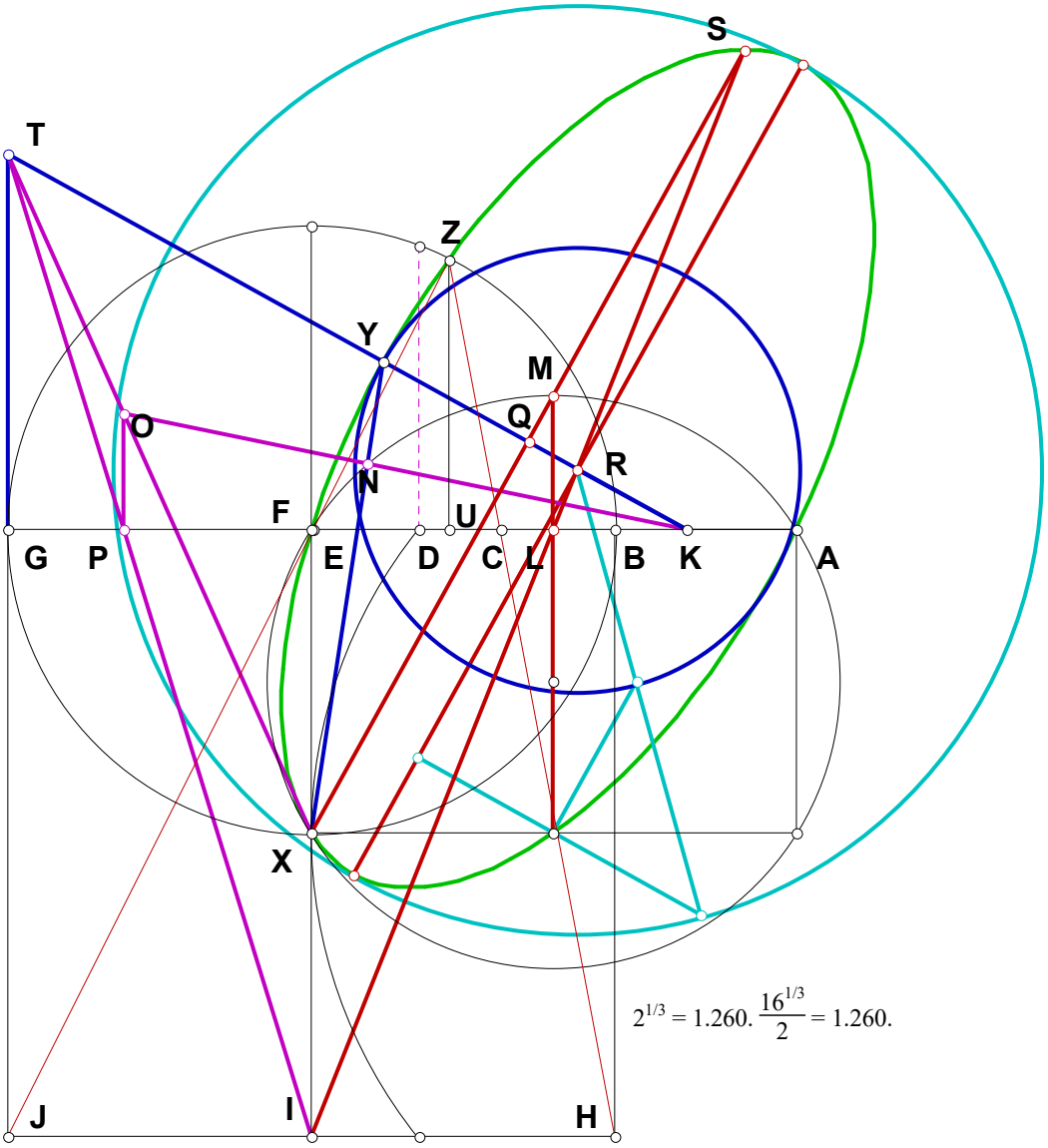
The Idiot Crafticus

A workbook for the Delian Quest.

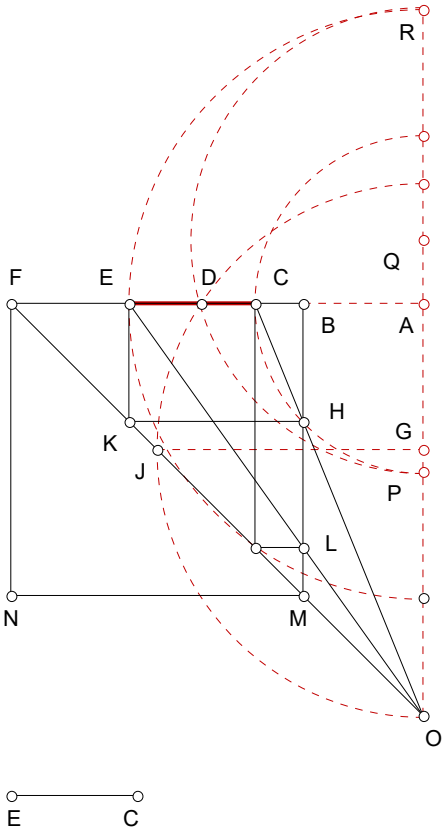


$2^{1/3} = 1.260.\ \frac{16^{1/3}}{2} = 1.260.$

06/20/92 A Triplicate Ratio

Given BF = N_1, MO = N_2 =
CE = N_3 =

AQ = CE/2
BM =
FM =
AB =
AF =
AD =
DQ =
QR =
QP =
AP =
AR =
AC =
AE =
AO =
BC =
EF =
EK =
BH =



$$\frac{BC}{BH} - \frac{AC}{AO} =$$

08/12/92 Rusty Cube of a Sphere

Given AB = N.

BD =

BG =

DJ =

CG =

BC =

CD =

DG =

GJ =

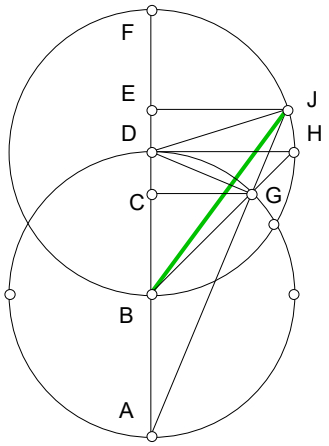
AC =

AG =

AJ =

AE =

EJ =



BE =

BJ =

$$\frac{(4/3 \times \pi \times N^3)^{1/3}}{BJ} =$$

01/08/93 Pythagoras Revisited

Given AB = S_1, BC = S_2, AC = S_3

AG =

BH =

AE =

BF =

EF =

DE =

DF =

AD =

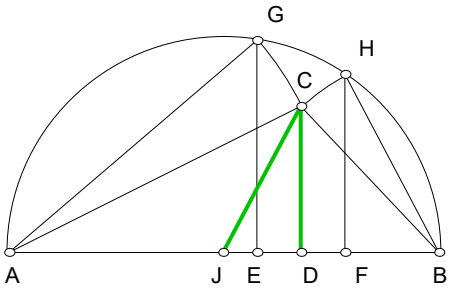
BD =

CD =

AJ =

JD =

CJ =



06/03/93 Exploring The Properties Of The Curve AH

Given AG = N_1, AC = AG/N_2

GF = AG/3

AE =

EG =

AF =

FM =

GM =

GN =

EN =

NH =

NS =

PN =

PS =

ST =

PQ =

SQ =

QT =

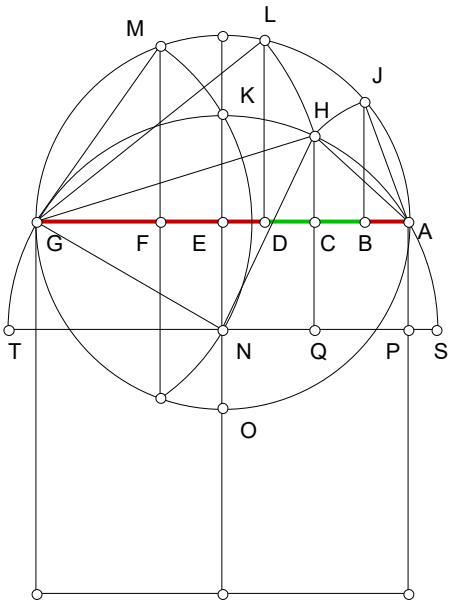
QH =

CQ =

CH =

AH =

CG =



GH =

AJ =

AB =

GL =

DG =

BD =

$\sqrt{AB \times DG} - BD =$

06/07/93 For All Triangles Find BD

Given AB, BC, AC, CD, AD.

CE =

CF =

EF =

DE =

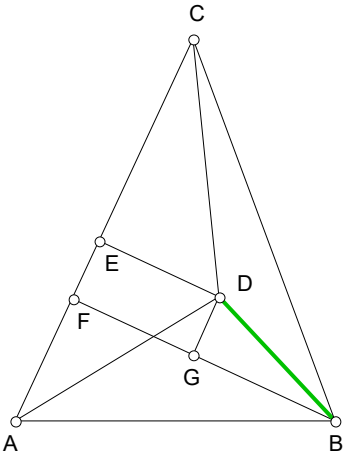
BF =

GF =

BG =

DG =

BD =



06/09/93 Rectangular Roots

Given $AD = N_1$, $DE = N_2$

CF =

BF =

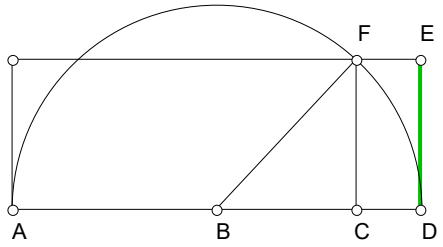
AB =

BC =

AC =

CD =

$\sqrt{CD \times AC} - DE =$



06/21/93 A Pyramid of Ratios I

Given $AB = 1$, $AD = \frac{AB}{N_1}$, $AL = \frac{AB}{2}$

$\delta = 1 \ldots N_2$, $DE = \frac{CD \times \delta}{N_2}$

DL =

AC =

CL =

CD =

DK =

AK =

BK =

EK =

BE =

HK =

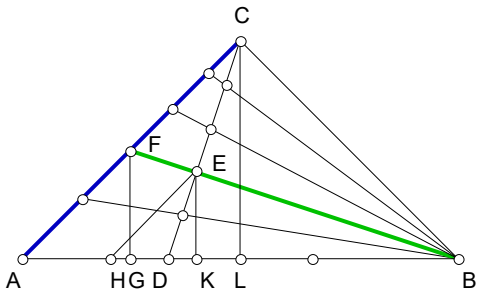
BH =

EH =

AF =

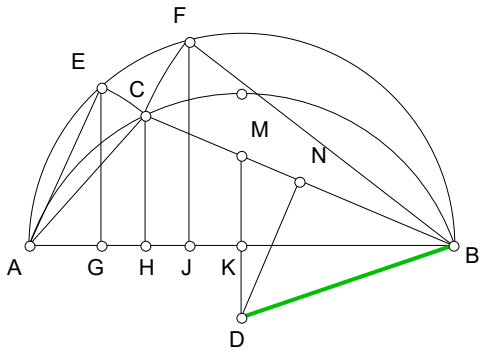
BF =

EF =



06/27/93 Describe a Circle about a Triangle

Given AB, BC, AC, find BD.



BK =

AE =

BF =

AG =

BJ =

GJ =

HJ =

BH =

CH =

BN =

BM =

MN =

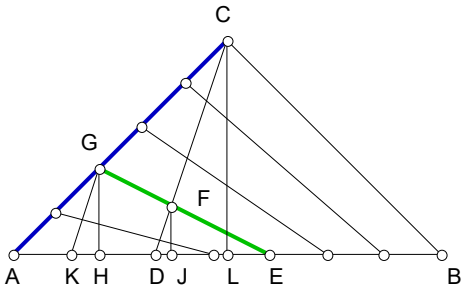
DN =

BD =

07/15/93 Pyramid of Ratios II

Given AB = 1, AD = $\frac{AB}{N_1}$, DE = $\frac{BD}{N_2}$

AG = $\frac{AC}{N_2}$.



AC =

BD =

AE =

AH =

GH =

EH =

EG =

AL =

DL =

CL =

HK =

EK =

DJ =

FJ =

DF =

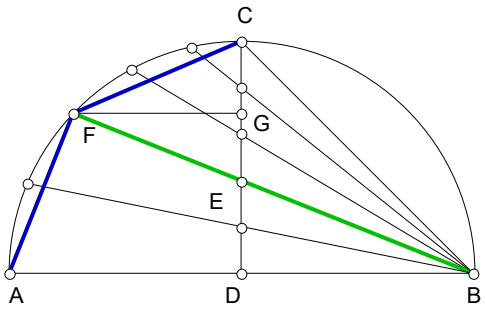
EF =

FG =

CD =

07/25/93 Pyramid of Ratios III

Given AB = 1, AD = $\frac{AB}{2}$, DE = $\frac{CD}{N}$.



BD =

CD =

BC =

BE =

BF =

AF =

EF =

EG =

FG =

DG =

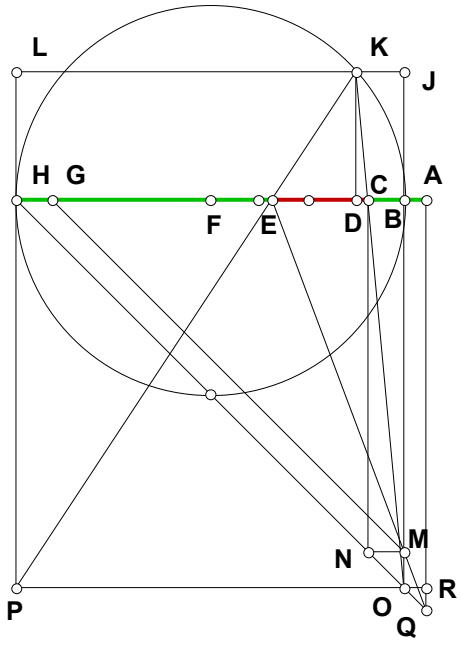
GC =

CF =

11/06/93 Gruntwork I on the Delian Solution

Given N, BH = 1, BF = $\frac{BH}{2}$

BD = $\frac{BF}{N}$.



DH =

DK =

BJ =

BO =

JO =

JK =

CD =

KL =

LP =

DE =

BC =

CE =

MN =

GH =

CH =

HN =

GM =

EH =

EG =

HQ =

HO =

OQ =

OR =

AB =

AC =

AE =

AH =

AD – $(AB \times AC^2)^{1/3}$ =

AF – $(AB^2 \times AC)^{1/3}$ =

11/09/93 Solve for Cube Placement

Given N, BH = N – 1

$BG = \frac{BH}{2}$, $CF = N^{2/3} - N^{1/3}$

BL = CF.

GP =

BK =

BD =

NP =

GN =

EN =

GE =

CE =

BC =

GH =

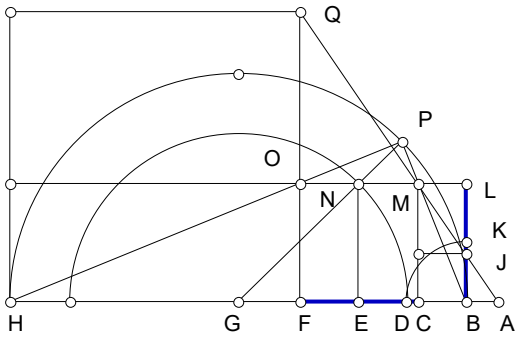
EF =

FH =

FQ =

FO =

OQ =



MO =

AF =

AC =

AH =

AB =

$(AB^2 \times AH)^{1/3} - AC =$

$(AB \times AH2)^{1/3} - AF =$

11/10/93 Gruntwork II on the Delian Solution

Given N, $DE = \frac{AE}{N}$.

AD =

AH =

AG =

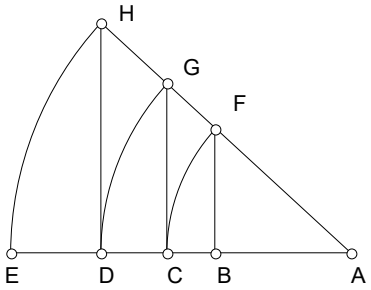
AC =

AF =

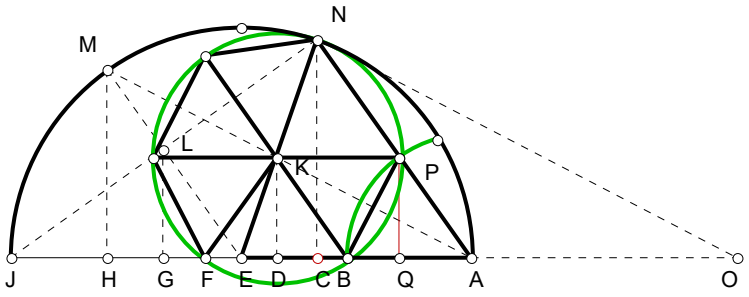
AB =

$(AB^2 \times AE)^{1/3} - AC =$

$(AB \times AE^2)^{1/3} - AD =$



11/11/93 The Archamedian Paper Trisector.



Given N, AJ = 1, AE = $\frac{AJ}{2}$ and AC = $\frac{AJ}{N}$.

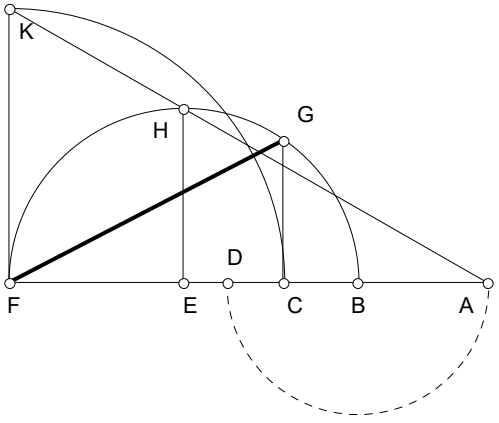
EJ =
EN =
EM =
CJ =
CN =
JN =
JL =
GL =
GJ =
EG =
EL =
EH =
HM =
AH =
CO =

CE =
EO =
EK =
DE =
DK =
AD =
KN =
BK =
BD =
AB =
AB – BK =
AN =
AP =
PQ =
PQ – DK =

11/12/93 To Square a Circle

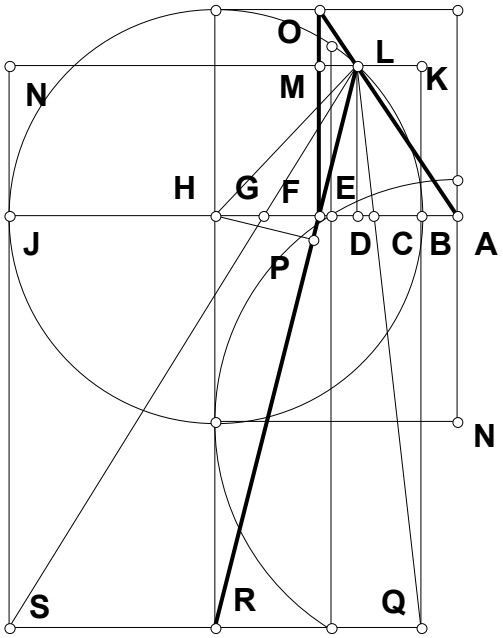
Given BF = 1, BD = ¾ × BE.

BE =
EF =
EH =
AB =
AE =
AF =
FK =
CF =
BC =
CG =
FG =



11/18/93 Exploring Cube Roots Plate A

Given N, BJ, BH = $\frac{BH}{2}$, BF = $\frac{BH}{N}$.



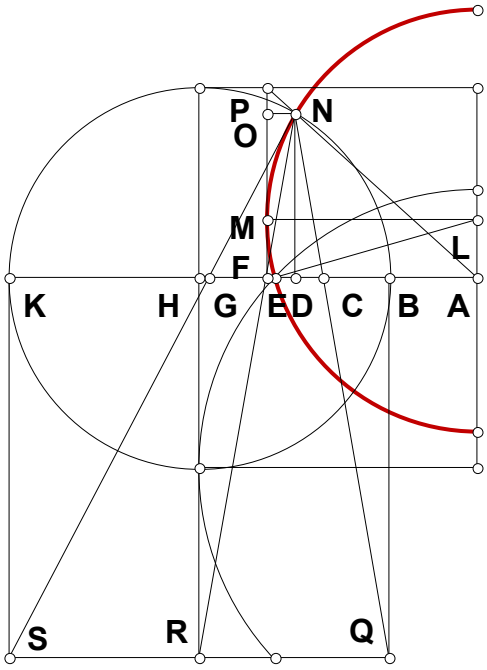
HL =
FH =
HR =
FR =
FP =
PH =
LP =
FL =
DF =
DL =
FO =
MO =
LM =
AF =
AB =
BQ =
BK =
BD =
KQ =
KL =
BC =
DJ =
LN =

JS =
JN =
NS =
GJ =
BG =
AC =
AG =
AJ =
$(AB^2 \times AJ)^{1/3} - AC =$
$(AB \times AJ^2)^{1/3} - AG =$

11/18/93 Exploring Cube Roots Plate B

Given N, BK = 1, BH = $\frac{BK}{2}$, BD = $\frac{BH}{N}$.

DK =
DN =
BQ =
KS =
HR =
BC =
GK =
BG =
DH =
FH =
BF =
CF =
AL =
DF =
NO =
FP =
PO =
AD =

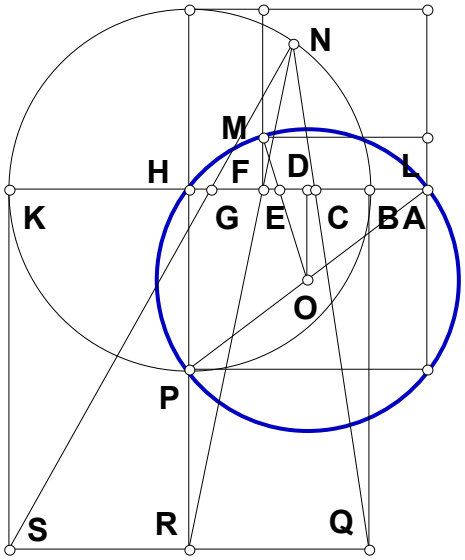


AB =
AF =
LM =
EL =
AK =
$\sqrt{EL^2 - AL^2} - \sqrt{AB \times AK}$ =

11/18/93 Exploring Cube Roots Plate C

Given N, AB = 1, AK = AB × N,

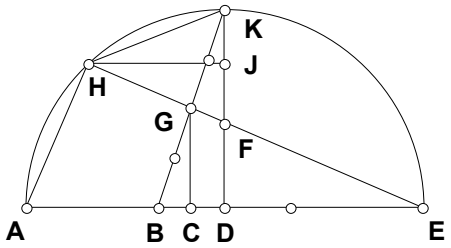
BK =
AC =
AG =
CG =
CF =
BH =
AH =
HP =
AP =
AO =
DO =
AF =
AD =
DF =
MO =



FM =
$MO^2 - [DF^2 + (DO + FM)^2]$ =

11/24/93 Pyramid of Ratios IV

Given N_1, N_2, AE = 1, $AB = \frac{AE}{N_1}$



$BG = \frac{BK}{N_2}$

AD =

DK =

DE =

BD =

BK =

BC =

CG =

AC =

CE =

DF =

EG =

EF =

AH =

EH =

GH =

FH =

FJ =

HJ =

DJ =

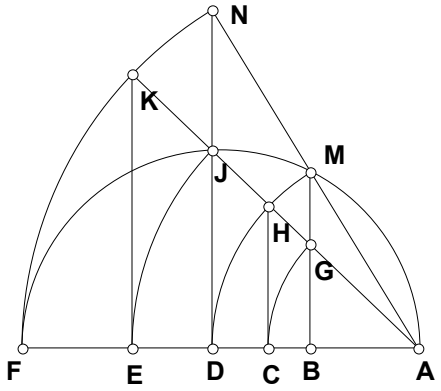
JK =

HK =

$\frac{AH}{HK} - \frac{\sqrt{2} \times N_1}{2 \times (N_1 - 1)(N_2 - 1)} =$

12/04/93 $M^{1/2^N}$ Exponential Series

Given M, AF = M, AB = 1.



BF =

BM =

AM =

AN =

AD =

DF =

DJ =

AJ =

AK =

AE =

AH =

AC =

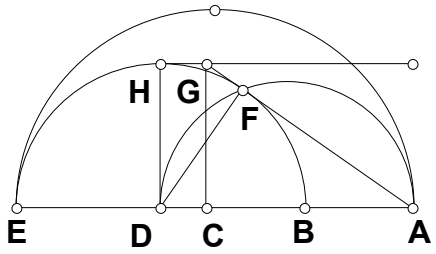
$M^{1/4} - AC =$

$M^{2/4} - AD =$

$M^{3/4} - AE =$

12/06/93 Methods: Square Roots

Given N, AB = 1, AE = AB × N.



BE =

BD =

DF =

AD =

AF =

AC =

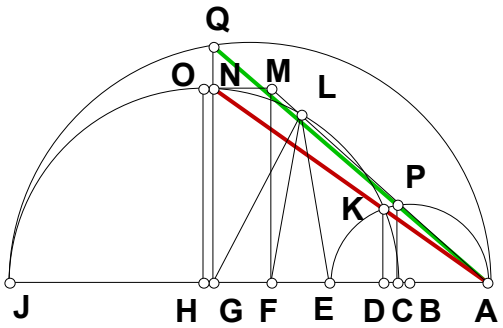
$\sqrt{AB \times AE} - AC =$

12/06/93b Gruntwork on the Delian Solution IV

Given N, AC = 1, AJ = AC × N,

$AE = (AC^2 \times AJ)^{1/3}$

$AG = (AC \times AJ^2)^{1/3}$



CG =

CJ =

GJ =

GN =

AB =

CE =

CH =

BK =

HK =

HJ =

AH =

BH =

BD =

DE =

AD =

DK =

GQ =

CP =

$\frac{AG}{GN} - \frac{AD}{DK} =$

$\frac{AG}{GQ} - \frac{AC}{CP} =$

12/11/93 The Structure in Red

Given N, AB = 1, AL = AB × N.

BL =

BK =

AE =

AJ =

BE =

BJ =

JL =

EJ =

FJ =

FL =

BF =

FP =

KR =

KL =

FK =

IK =

AK =

AI =

AD =

KT =

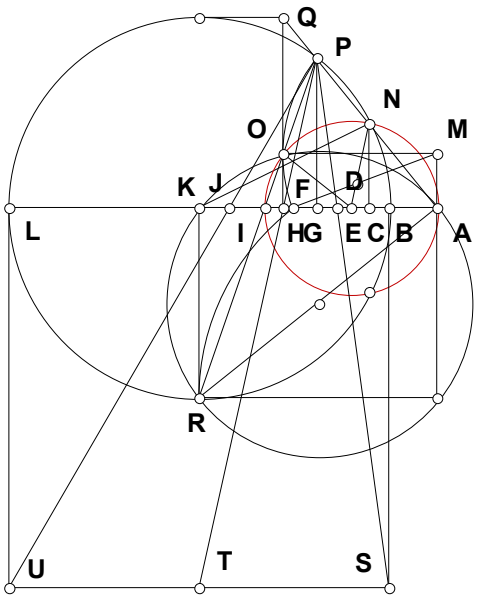
FH =

AF =

AH =

HI =

HO =



DN =

KN =

DK =

CK =

AC =

CI =

CN =

$\frac{KR}{IK} - \frac{HO}{HI} =$

$\frac{AF}{FP} - \frac{AC}{CN} =$

12/12/93 The Square Root

Given N, BE = 1, AF = BE × N,

$AD = \frac{AF}{2}$, $BD = \frac{BE}{2}$.

AB =

AE =

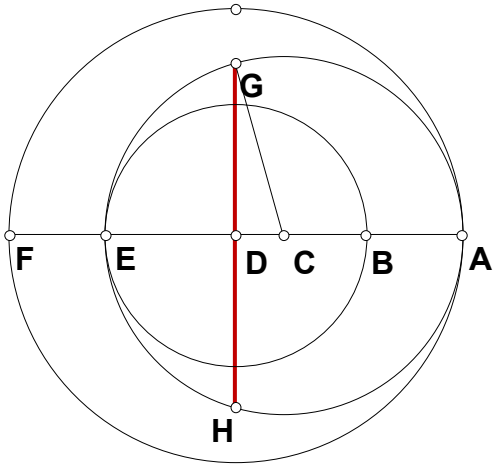
AC =

CG =

CD =

GH =

$GH - \sqrt{AF \times BE} =$



12/12/93B Generalize 12/12/93

Given N_1, N_2, N_3, $AF = N_1$

$DF = \frac{AF}{N_2}$, $DE = \frac{DF}{N_3}$

AD =

AE =

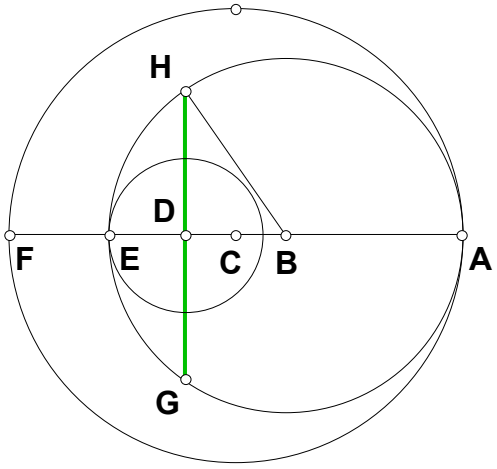
AB =

BD =

BH =

GH =

$GH - 2 \times \frac{N_1 \times \sqrt{N_2 - 1}}{N_2 \times \sqrt{N_3}} =$



04/06/94 Inscribe a Circle in a Triangle

Given AB, BC, AC.

AK =

BD =

AF =

FK =

CF =

CK =

AN =

AH =

HN =

BF =

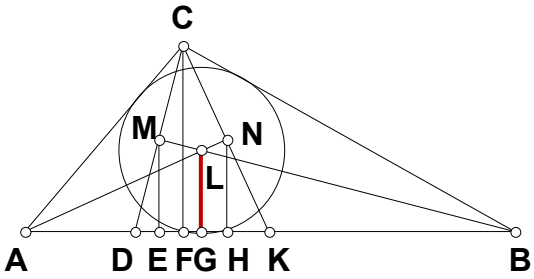
DF =

CD =

BM =

BE =

GL =



04/21/94 The Cradle

Given N, AB = 1, AL = AB × N.

AF = `

AC =

AJ =

BL =

BP =

LR =

FL =

BC =

BJ =

JL =

BF =

FJ =

CF =

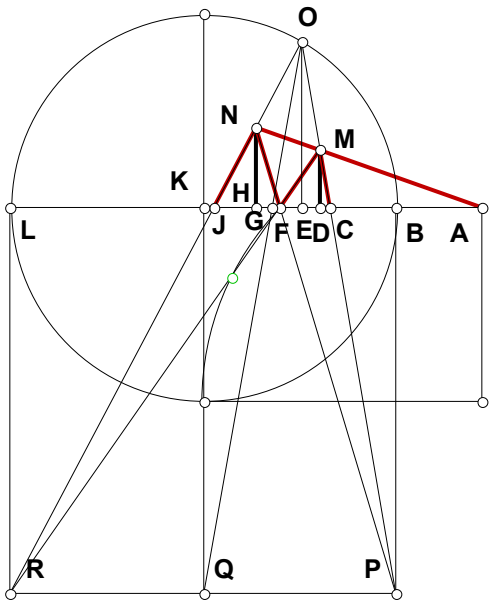
FG =

GN =

CD =

DM =

AD =



AG =

$\frac{AG}{GN} - \frac{AD}{DM} =$

04/26/94 Tangents and Similarity Points

Given R_L, R_S, D, AC = R_L,

BD = R_S, AB = D.

DE =

AE =

CE =

AO =

AG =

GO =

BH =

BO =

HO =

GH =

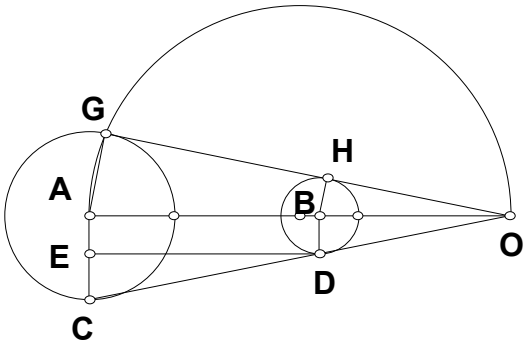
AP =

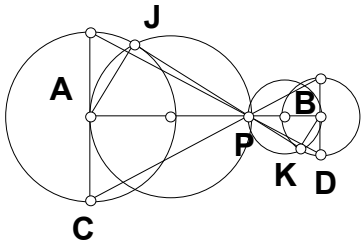
BP =

AJ =

BK =

JP =





KP =

JK =

04/27/94 The Chordal or Power Line of two Circles

Given AB, AD, BC, IJ.

AE =

BF =

GH =

GI =

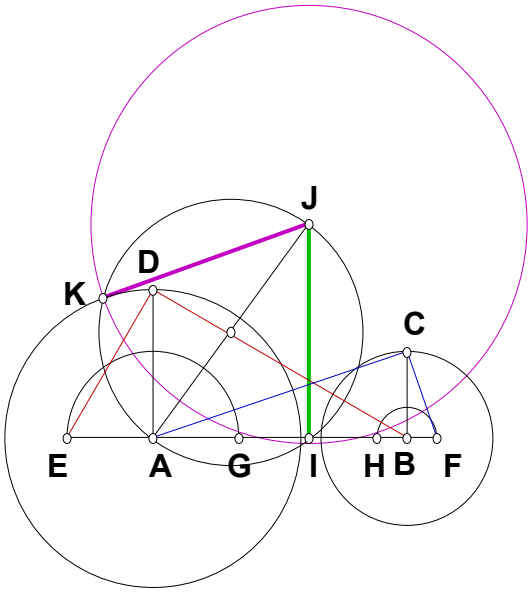
AI =

BI =

AJ =

AK =

JK =



04/28/94 The Power Point

Given AB, CD, EF, AC, AE, CE.

AG =

AH =

AM =

EM =

AK =

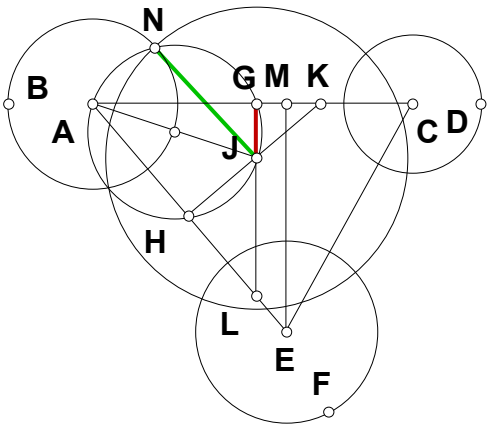
GK =

GJ =

AJ =

AN =

JN =



04/30/94 Division N^2

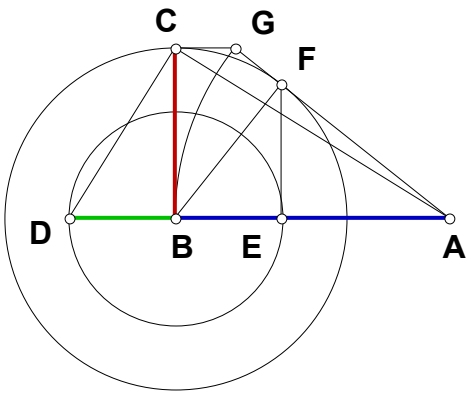
Given N_1, N_2, AB = N_1, BC = N_2

AC =

CD =

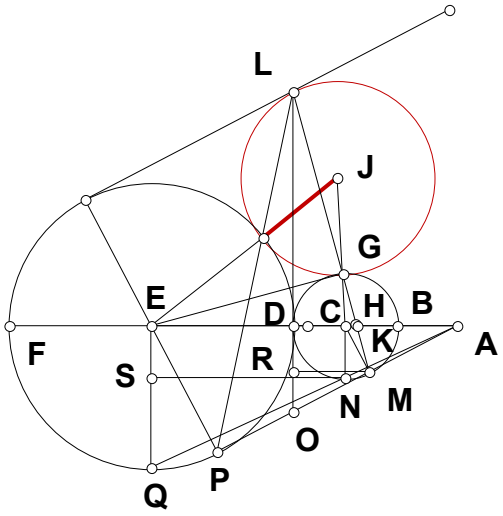
BD =

$\frac{N_2^2}{N_1}$ – BD =



05/01/94 Two Circles and a Parallel

Given R_1, R_2, DE = R_1, BC = R_2.



CN =
EQ =
CD =
CE =
ES =
NS =
SQ =
AE =
AD =
EP =
AP =
DO =
DL =
AC =
AM =
AO =
MO =
MR =
RO =

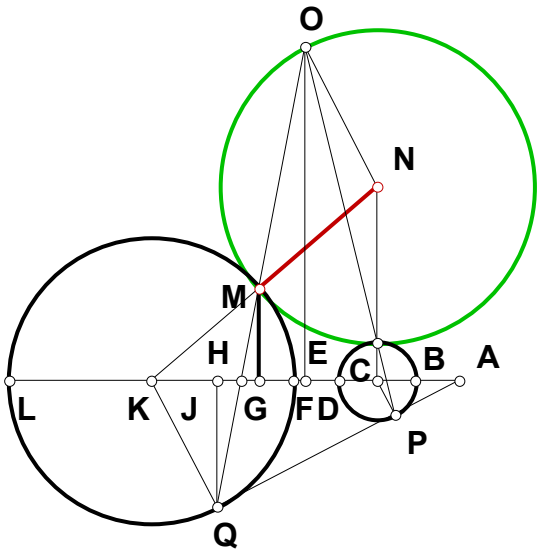
DR =
ML =
CK =
CM =
MG =
GJ =

LR =
DK =
CH =
MH =
GL =

05/04/94 Two Circles and a Tangent

Given R_1, R_2, D, N, FK = R1

BC = R_2, CH = D, FG = $\frac{FL}{N}$.



FL =
AK =
EK =
AQ =
GL =
GM =
AJ =
AF =
FJ =
JL =
JQ =
GJ =
QM =
GH =
HM =

EF =
HO =
KM =

EH =
MO =
MH =

05/16/94 Tangent to Diameter and Circles

Given N_1, N_2, CF = 1, $CD = \frac{CE}{N_1}$

$EJ = CE \times N_2$.

CE =

DE =

DJ =

JG =

BE =

EG =

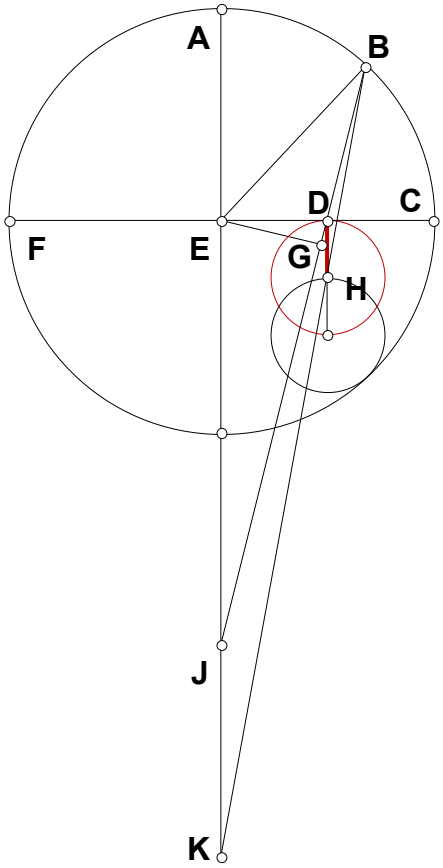
BG =

BJ =

JK =

BD =

BH =



05/16/94b Tangent to Diameter and Circles

Given N_1, N_2, AF = 1, $DE = \frac{DF}{N_1}$

$AJ = AF \times N_2$.

DF =

HJ =

EF =

FJ =

EJ =

EG =

BF =

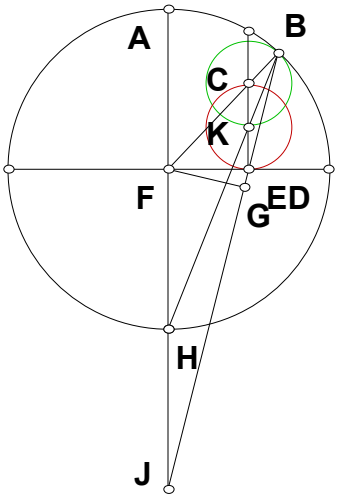
FG =

BG =

BE =

BJ =

KE =



BC =

BC – KE =

10/27/94 Method: Square Root

Given N, AB = 1, AG = AB × N.

BG =

BF =

AF =

FH =

DF =

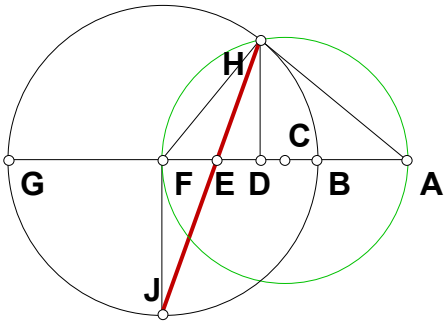
AD =

BD =

DG =

FJ =

DH =



DE =

AE =

$\sqrt{AB \times AG} - AE =$

10/28/94 Method: Square Root

Given N, AB = 1, AH = AB × N.

BH =

BG =

GK =

AG =

DG =

AD =

AL =

GL =

BD =

DH =

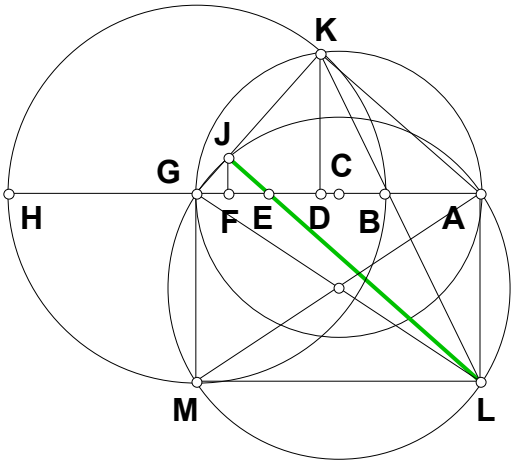
DK =

KL =

GJ =

JL =

FG =



AF =

FJ =

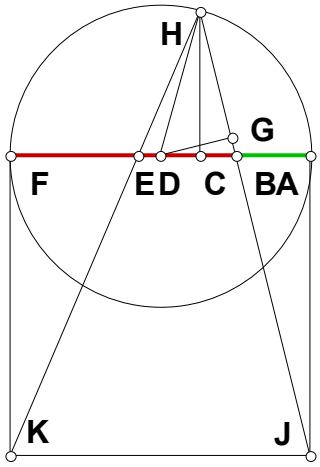
EF =

AE =

$\sqrt{AB \times AH} - AE =$

10/31/94 Divide a Segment Such

Given N, AB = 1, AF = AB × N.

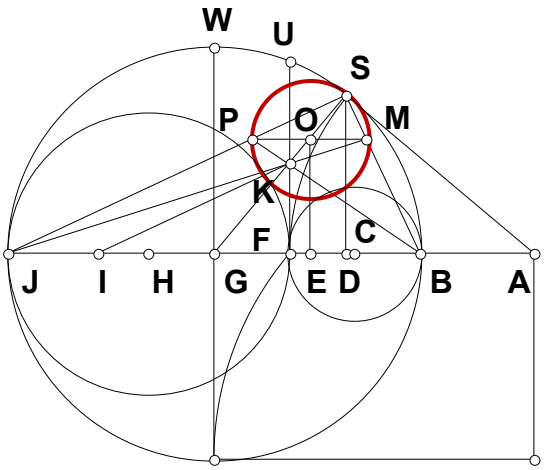


BF =
AD =
AJ =
FK =
BD =
BJ =
BG =
DH =
DG =
GH =
HJ =
BC =
AC =
CF =
CH =
CE =

EF =
BE =
DF =
CD =
$BE^2 - EF =$

12/24/94 Power Line at Square Root

Given N, AB = 1, AJ = AB × N.



AF =
BJ =
BG =
AG =
GS =
DG =
FG =
BD =
DJ =
DS =
FK =
BF =
BK =
FI =
BI =

BP =
KP =
MP =
OS =

12/26/94 Point G

Given N, AB = 1, AF = AB × N.

BF =

BE =

EF =

EK =

AD =

CE =

CF =

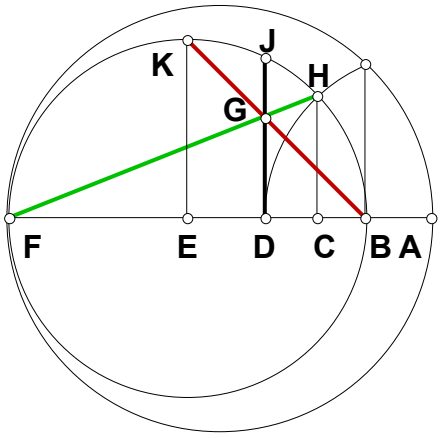
DF =

BC =

CH =

DG_1 =

BD =



DG_2 =

$DG_1 - DG_2$ =

01/06/95 Alternate Method Quad Roots

Given N, AC = 1, AJ = AC × N.

CJ =

AE =

CE =

EJ =

EN =

BM =

HO =

MN =

NO =

BE =

EH =

BJ =

MJ =

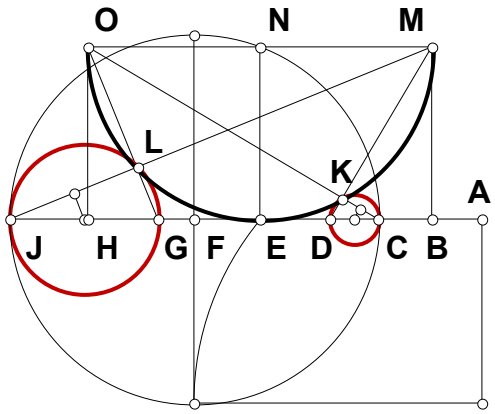
MO =

ML =

JL =

GJ =

AG =



$(AC \times AJ^3)^{1/4} - AG$ =

CH =

CO =

KO =

CK =

CD =

AD =

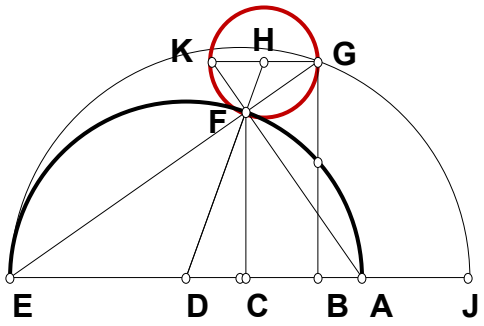
$(AC^3 \times AJ)^{1/4} - AD$ =

09/13/95 A Study in Placement

Given N_1, N_2, N_3, N_4.

Given AE = 1, AB = AE $\times \frac{N_1}{N_2}$,

AC = $\frac{N_3}{N_4}$ what is GH?



AD =
DF =
DE =
CD =
CF =
CE =
BD =
BE =
EF =
EG =
FG =
GJ =

Given AE = 1, AB = AE $\times \frac{N_1}{N_2}$

EF = AE $\times \frac{N_3}{N_4}$.

DE =
BD =

BE =
EG =
FG =
GH =

Given AE = 1, AB = AE $\times \frac{N_1}{N_2}$

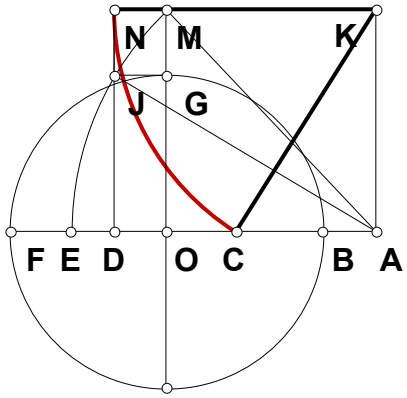
BG = AE $\times \frac{N_3}{N_4}$.

AD =
BE =
EG =
EJ =
EF =
FG =
GH =

10/14/95 Alternate Method: Square Root

Given N_1, N_2, AB = 1

AF = AB $\times$ N_1, AK = AB $\times$ N_2.

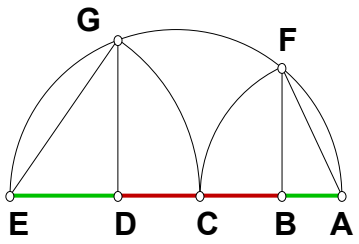


BF =
BO =
AO =
KM =
AM =
GO =
DJ =
AJ =
AD =
KN =

CK =
AC =
$\sqrt{AB \times AF}$ – AC =

10/20/95 Four Times The Square

Given N, AE = 1, AB = $\frac{AE}{N}$.



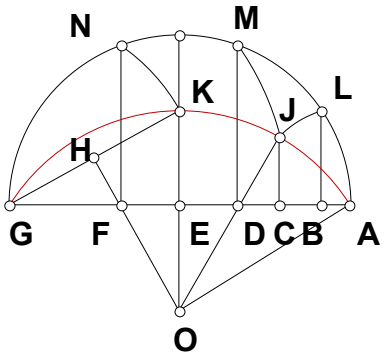
BE =
BF =
AF =
AC =
CE =
EG =
DE =
BD =

$$\frac{BD^2}{4 \times (AB \times DE)} =$$

11/01/95 Gemini Roots

Given N_1, N_2, N_3, AG = 1

EF = $\frac{AG}{2 \times N_1}$, DE = AE × $\frac{N_2}{N_3}$.



AE =
EG =
AF =
FG =
FN =
GN =
GK =
EK =
EO =
OK =
DE =
DO =
DJ =
CD =
CE =
CJ =

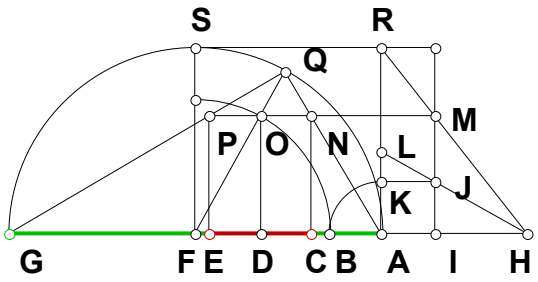
AC =
AJ =
AL =
AB =
CG =
GJ =
GM =
DG =
BD =

$$\frac{N_1 - 1}{2} - \frac{AB \times DG}{BD} =$$

11/05/95 Gemini Roots Again

Given N1, N2, AG = 1

$AL = \frac{AR}{N_1}$, $IM = \frac{AR}{N_2}$.



AF =

AR =

FQ =

FG =

AK =

DO =

AB =

BF =

FO =

OQ =

NP =

CD =

DE =

DF =

AD =

AC =

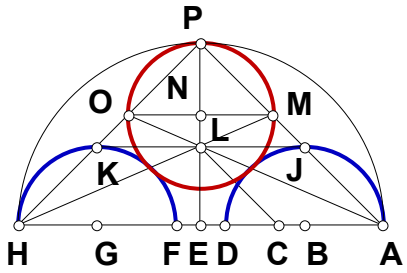
EG =

CE =

$\frac{N_1}{2} - \frac{\sqrt{AC \times EG}}{CE} =$

12/01/95 Method for Equals

Given N, AH = 1, $AB = \frac{AE}{N}$.



AE =

EH =

EP =

AP =

CE =

CH =

CL =

AM =

MP =

NP =

$NP - \frac{N - 1}{2 \times (N + 1)} =$

12/20/95 Just for Fun

Given N, EF = 1, EJ = EF × N.

AE =

AF =

AB =

BF =

BE =

BH =

BJ =

BD =

BG =

BC =

GH =

DE =

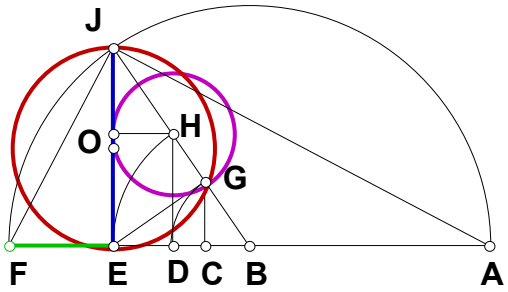
HO =

EG_1 =

GJ =

EG_2 =

$\frac{EG_1}{EG_2}$ =



12/29/95

Given N_1, N_2, AC = N_1, CE = N_2.

AE =

AD =

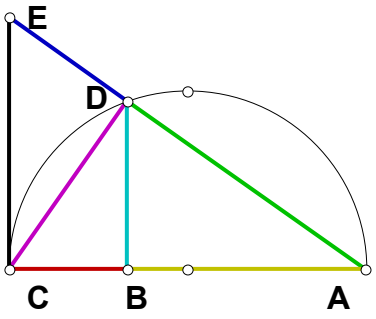
AB =

BC =

BD =

CD =

DE =



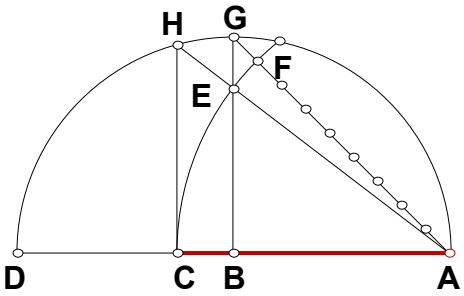
01/07/96 Two Cube Rustic

Given AD = 2, AF = $\frac{8 \times AG}{9}$.

AB =

AG =

AC =



01/08/96 Alternate Method: Power Line

Given R_1, R_2, D, DE = R_1

KM = R_2, EK = D.

DM =

EF =

JK =

FJ =

AD =

BM =

DF =

JM =

FG =

GJ =

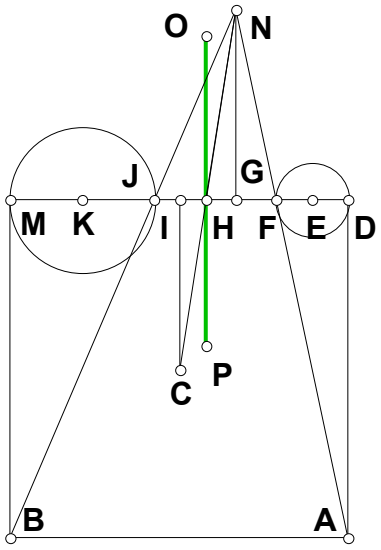
DI =

DG =

GI =

CI =

GN =



GH =

DH =

HM =

01/13/96 Pyramid of Ratios VI: Moving the Point

Given N_1, N_2, AD = 1

$AB = \frac{AD}{N_1}$, $BE = \frac{BG}{N_2}$.

BD =

BG =

BC =

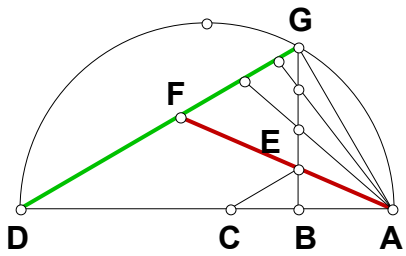
AE =

AC =

AF =

EF =

$\frac{AF}{EF} - \frac{N_2 N_1}{(N_2 - 1)(N_1 - N_1)} =$



DG =

CE =

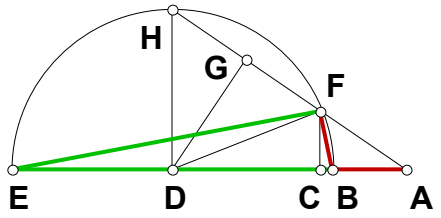
DF =

GF =

$\frac{DG}{GF} - \frac{N_2 + N_1 - 1}{N_2 - 1} =$

01/17/96 A Right Triangle In A Given Ratio

Given N, AB = 1, AE = AB × N.



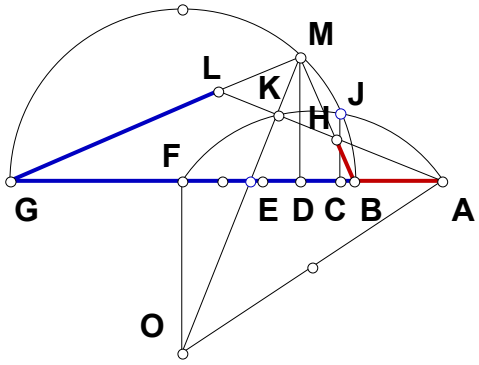
BE =
BD =
DF =
DE =
AD =
DH =
AH =
AG =
GH =
FG =
AF =
CD =

BC =
CE =
CF =
BF =
EF =
AC =
$\frac{AE}{AB} - \frac{EF}{BF} =$

01/17/96b Divide The Sides Of A Triangle In A Given Ratio

Given N1, N2, AB = 1

$AG = AB \times N_1$, $BD = \frac{CF}{N_2} + BC$

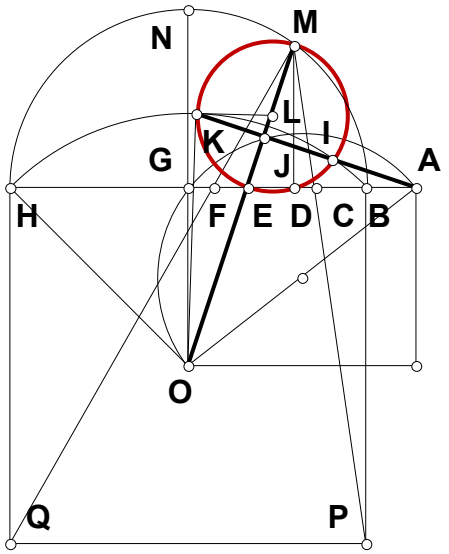


BG =
BF =
AC =
AF =
CF =
BC =
DF =
DG =
DM =
FO =
EF =
AE =
EO =
MO =
EK =

KM =
HK =
HM =
BM =
BH =
GM =
LM =
GL =
$\frac{AG}{AB} - \frac{GL}{BH} =$

01/21/96 The Power Line for Cube Roots

Given N, BH = 1, $BE = \frac{BG}{N}$.



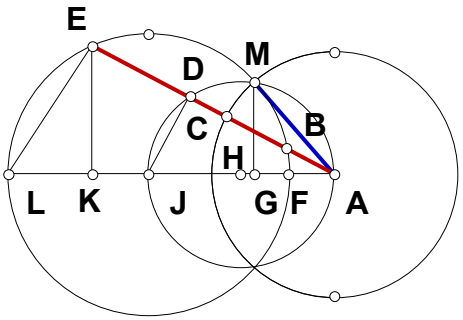
BP =
HQ =
BG =
GO =
GN =
NO =
GH =
EG =
EO =
MO =
EM =
EL =
LK =
LO =
LJ =
EJ =
AE =
AH =
AB =
DE =

DM =
BD =
BC =
DH =
DF =
AC =
AF =
$(AB^2 \times AH)^{1/3} - AC =$
$(AB \times AH^2)^{1/3} - AF =$

01/22/96 Alternate Method: Square Root

Given N_1, N_2, AF = 1

$AL = AF \times N_1$, $GK = \frac{GL}{N_2}$.



FL =
FJ =
AM =
AJ =
AG =
GL =
FG =
FK =
KL =
EK =
AK =

AE =
AD =
DE =
BD =
AB =
$\sqrt{AB \times AE} - AM =$

01/24/96 Tangent

Given N, AB = 1, AE = AB × N.

BE =

BD =

AD =

DM =

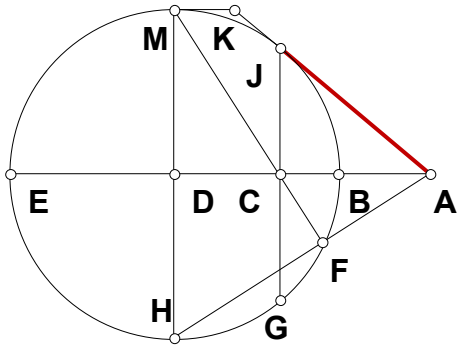
DH =

CD =

BC =

CE =

CJ =



AJ =

AJ – $\sqrt{N}$ =

01/25/96 Projecting to the Cubic Similarity Point

Given N, BE = 1, BC = $\frac{BD}{N}$.

BD =

DK =

DJ =

JK =

DE =

CD =

CK =

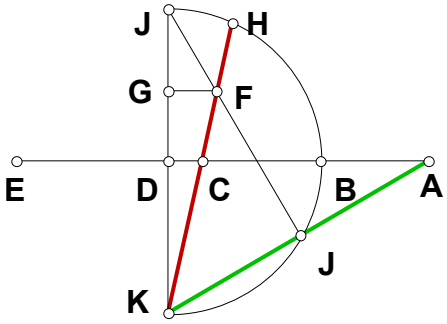
HK =

CH =

CF =

FK =

GK =



FG =

GJ =

AD =

AE =

AB =

01/29/96 Linear Division

Given N_1, N_2, AE = 1

$AH = AE \times N_1$, $AC = \frac{AE}{2}$

$CF = AE \times N_2$.

BC =

CE =

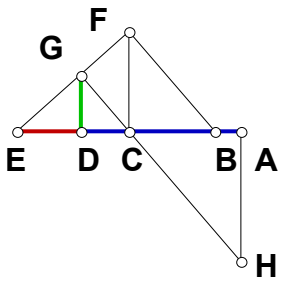
BE =

CD =

DE =

AD =

DG =



Given N_1, N_2, N_3, AE = 1

$AH = AE \times N_1$, $AC = \frac{AE}{N_2}$

$CF = AE \times N_3$.

BC =

CE =

BE =

CD =

DE =

AD =

DG =

01/31/96 Gemini Roots

Given N_1, N_2, BC = 1

$BJ = BC \times N_1$, $CR = CJ \times N_2$.

CJ =

CI =

IJ =

BF =

AB =

AF =

CF =

FJ =

FO =

HS =

FI =

FG =

AG =

OS =

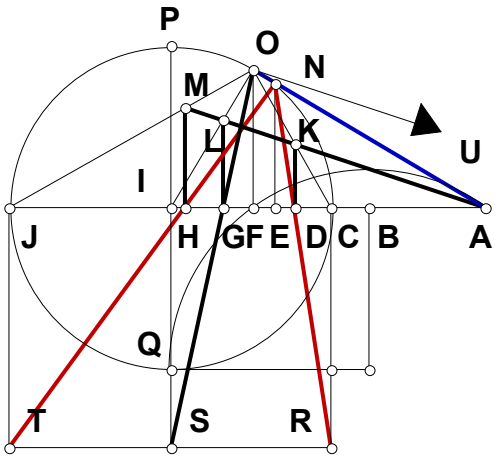
GO =

AJ =

GL =

FU =

AH =



DK =

AC =

CH =

HJ =

CE =

$\frac{AF}{FO} - \frac{AE}{EN} =$

BD =

$\sqrt{BC \times BJ} - \sqrt{BD \times BH} =$

AD =

CD =

DH =

EN =

AE =

BH =

02/02/96 Find A Segment

Given N, N > 2 = 1, BC = 1

BE = BC × N.

BD =

CD =

CH =

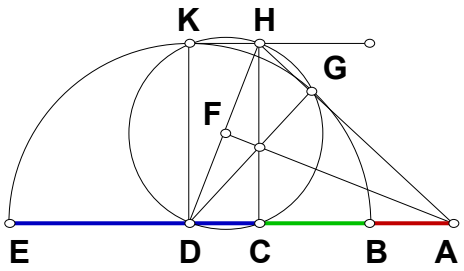
DH =

DF =

AD =

AB =

$AB - \frac{1}{N-2}$



04/14/96 Method for Unequals

Given N_1, N_2, CM = 1

$CE = \frac{CM}{N_1}$, $LM = \frac{CM}{N_2}$.

CK =

EL =

BL =

BM =

BC =

BK =

KS =

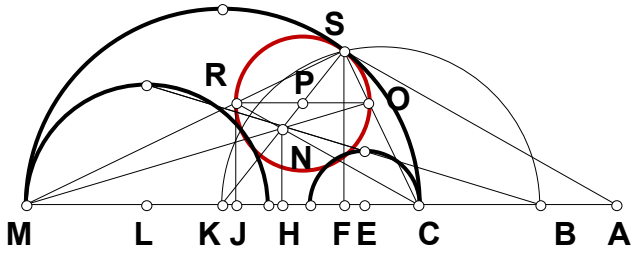
EH =

FK =

CF =

FM =

FS =



HK =

CH =

HN =

AF =

JR =

RO =

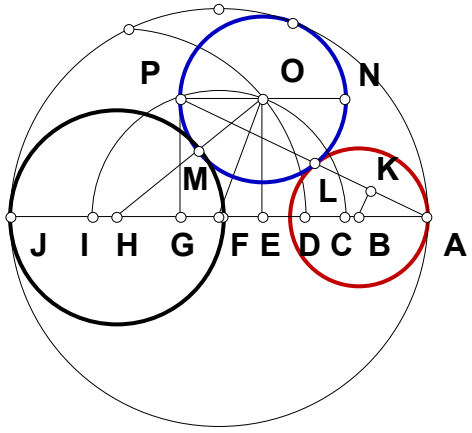
PS =

$PS - \frac{(R_2-2)(N_1-2)}{2\,(N_1N_2-4)} =$

04/16/96 Given Three Radii

Given N_1, N_2, AJ = 1,

$HJ = \frac{AJ}{N_1}$, $NO = \frac{AJ}{N_2}$.



AF =
HM =
MO =
HO =
FO =
AH =
FH =
EH =
EO =
OP =

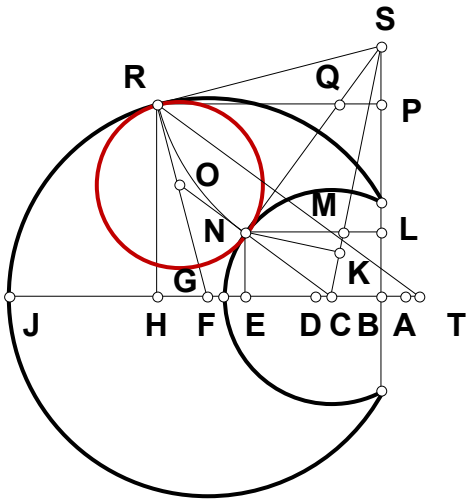
EG =
AG =
AP =
AL =

AE =
GP =
PL =
AB =

04/17/96 A Circle In A Crescent

Given N_1, N_2, N_3, AJ = 1

$AF = \frac{AJ}{N_1}$, $AC = \frac{AD}{N_2}$, $BH = \frac{BJ}{N_3}$.



AG =
FR =
AD =
CF =
CG =
BC =
AB =
BJ =
AH =
GH =
HR =
AP =
PR =
PS =
BS =
RS =
NS =
CN =

CS =
SK =
KM =
SL =
EN =
HT =
GO =

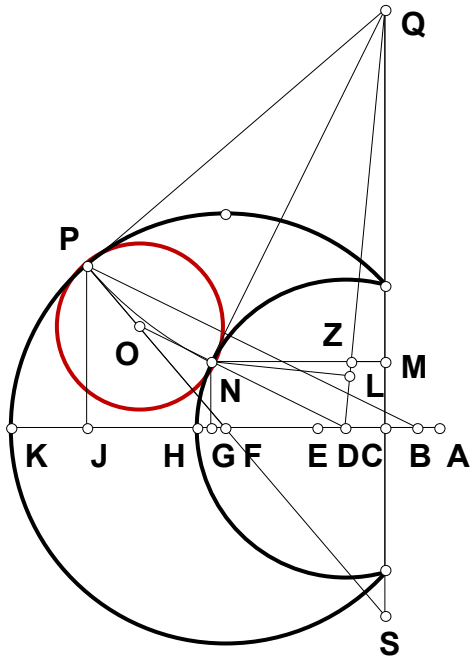
CK =
KN =
SM =
BL =
CE =
GT =
OR =

04/17/96b A Circle In A Crescent

Given N_1, N_2, N_3, AK = 1

$AH = \frac{AK}{N_1}$, $AD = \frac{AE}{N_2}$, $CJ = \frac{CK}{N_3}$.

AF =
FP =
FK =
AE =
EH =
DE =
DH =
DN =
DF =
CD =
AC =
CF =
FJ =
JP =
FS =
PS =
QS =
PQ =
CS =
CQ =
NQ =
DQ =
DL =



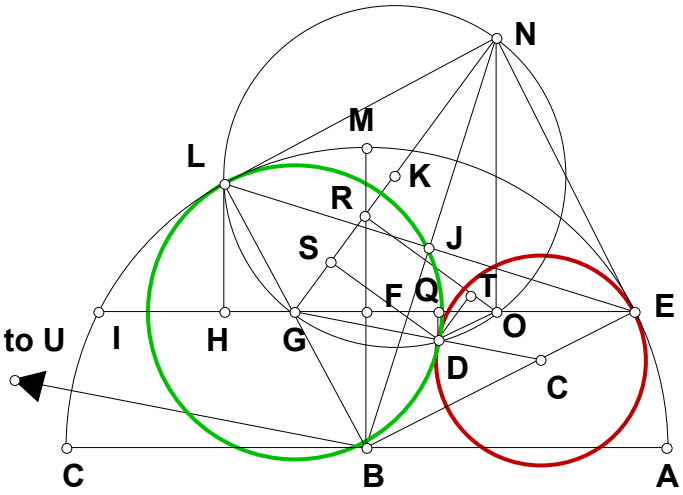
LN =
LZ =
QZ =
MQ =
CM =
GN =
CG =
BJ =
BF =
FO =
OP =

04/22/96

Given N_1, N_2, AC

$BF = \frac{BM}{N_1}$, $EG = \frac{EI}{N_2}$.

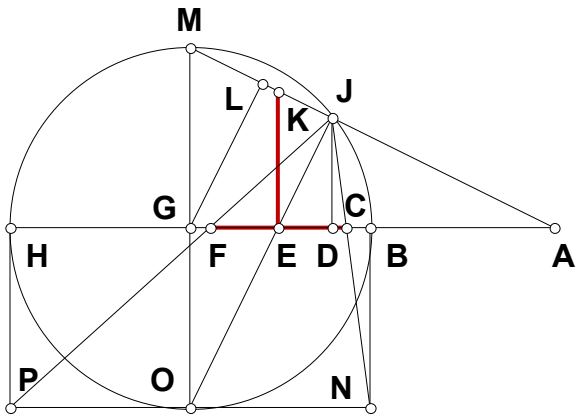
AB =
BM =
BE =
BL =
EF =
EI =
FG =
BG =
GL =
DG =
GH =
HL =
EH =
EL =
JL =
BJ =
LN =
GN =
JN =
EJ =
EN =
GO =
NO =



NR =
GS =
RS =
DT =
DS =
RT =
OR =
OT =
DO =
OQ =
GQ =
DQ =
FU =
CE =

04/23/96 Found a Sketch

Given N, AB = 1, AH = AB × N.

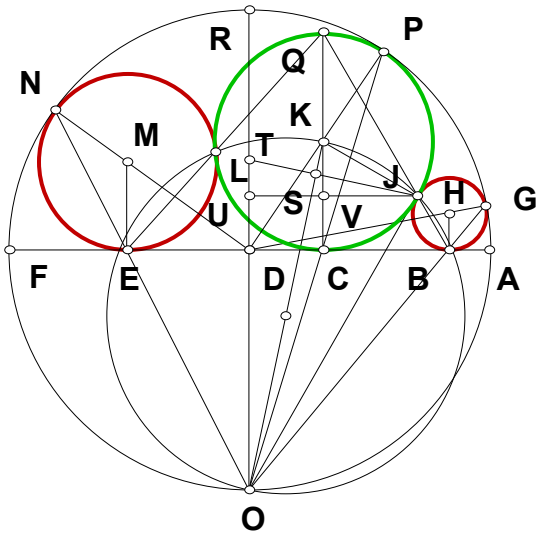


BH =
BG =
BN =
GO =
HP =
GM =
GH =
AG =
AM =
AL =
LM =
JL =
AJ =
AD =
BD =
DH =
DJ =
BC =

DF =
CD =
CF =
CE =
BE =
AE =
EK =
EK – CF =

04/24/96 Three Circles Tangent to a Chord

Given N, AF = 1, AC = $\frac{AF}{N}$.



AD =
DO =
OR =
CD =
CO =
PO =
CP =
CK =
JK =
KO =
JO =
KS =
SO =
JS =
ST =
JT =
TO =

TU =
DU =
CV =
CQ =
QV =
BH =

04/25/96 One Over N + One

Given N_1, N_2, AC = 1

$AF = AC \times N_1$, $FK = AC \times N_2$.

CF =

CE =

AE =

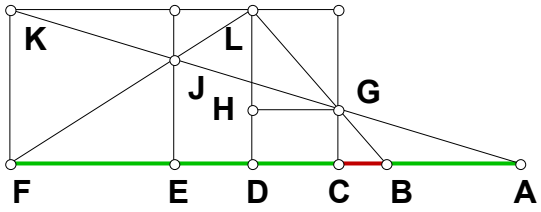
EJ =

DL =

EF =

DF =

CG =



CD =

DH =

HL =

BC =

$BC - \frac{1}{N_1 + 1} =$

04/27/96 A Root Figure

Given N_1, N_2, CD = 1

$CE = CD \times N_1$, $FK = CD \times N_2$.

CF =

DM =

EL =

DF =

EF =

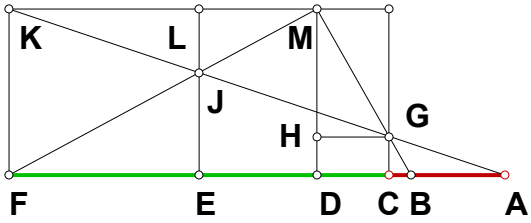
EJ =

JL =

KL =

AF =

AC =



CG =

DH =

HM =

BC =

BF =

BD =

$\sqrt{BD \times BF} - BD =$

04/29/96 What is DJ?

Given N, AB = 1, $AG = AB \times N$.

BG =

BF =

FK =

FO =

AF =

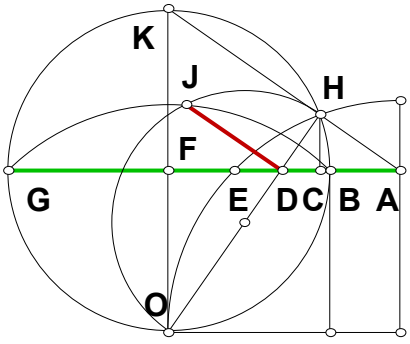
DF =

AK =

KO =

HO =

DO =



DH =

DJ =

$DJ - \frac{\sqrt{N}\,(N - 1)}{N + 1} =$

12/20/96 Alternate Method Quad Roots

Given N_1, N_2, AB = 1

$AL = AB \times N_1$, $BQ = BS \times N_2$.

BL =

BS =

LT =

BH =

HL =

AF =

FL =

BF =

FP =

FN =

EF =

EL =

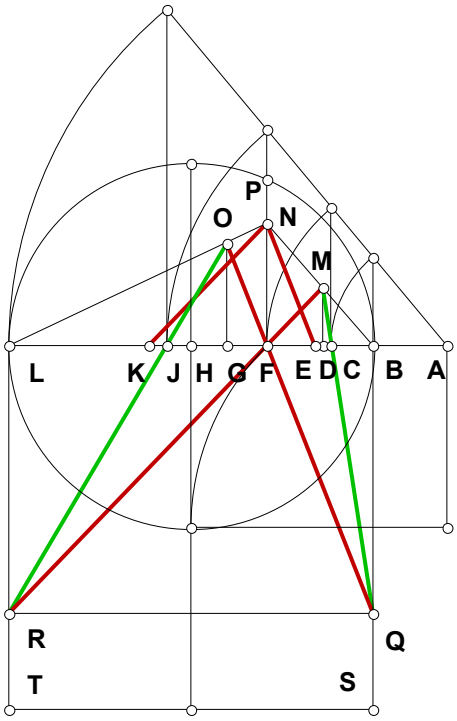
FG =

GO =

GL =

LR =

JL =



AJ =

$(AB \times AL^3)^{1/4} - AJ =$

04/04/97 Triangles

Given AB, AC, CD.

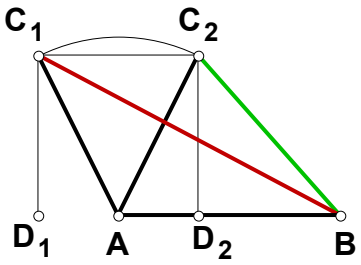
AD =

BD_1 =

BD_2 =

BC_1 =

BC_2 =



09/11/97 The Ellipse

Given N_1, N_2, AD = 1

$EF = \frac{AD}{N_1}$, $AB = \frac{AD}{N_2}$.

BD =

BJ =

AC =

BC =

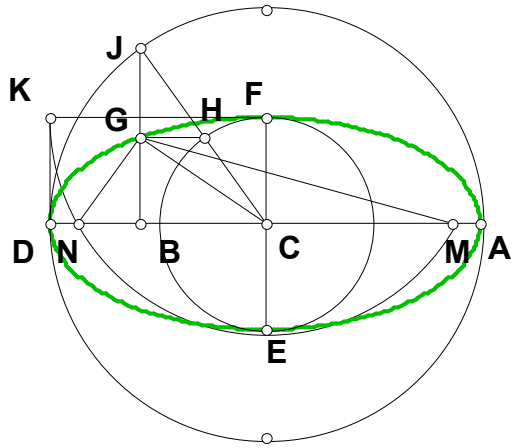
CH =

CJ =

BG =

CG =

MN =



02/10/98 A Square In A Triangle

Given N, AE = 1, EG = N.

AB =

BJ =

BD =

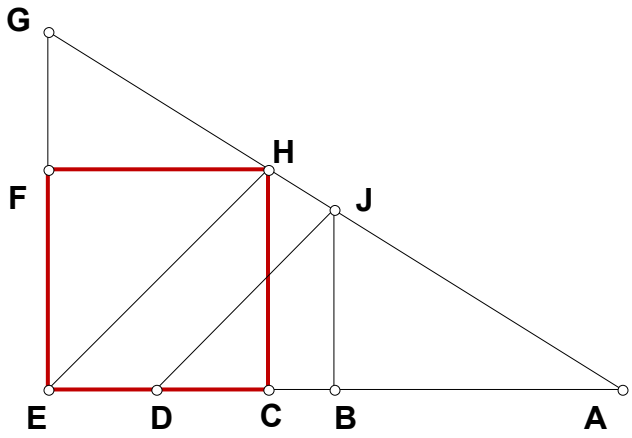
AD =

CE =

AC =

FG =

$\frac{AE}{AC} - (N + 1) =$



02/25/98 Alternate Method Root Series

Given N, AH = 1, HN = AH × N.

HJ =

FH =

AF =

FG =

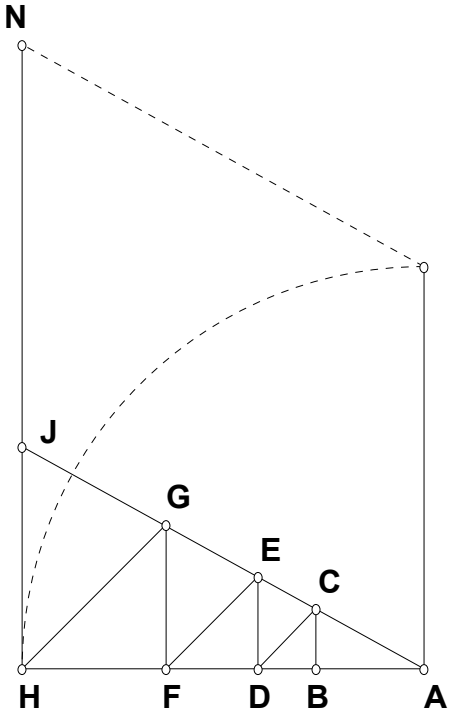
DF =

AD =

DE =

BD =

AB =



02/25/98B Sum Divided by One Powered

Given N_1, N_2, AH = 1

HM = AH × N_1, AN = AH × N_2.

HO =

AO =

AF =

FH =

FG =

DF =

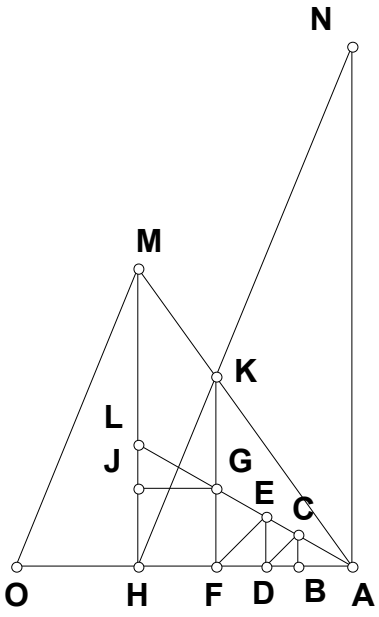
AD =

DE =

BD =

AB =

$$\frac{AH}{AB} - \left(\frac{N_1 + N_2}{N_2}\right)^3$$

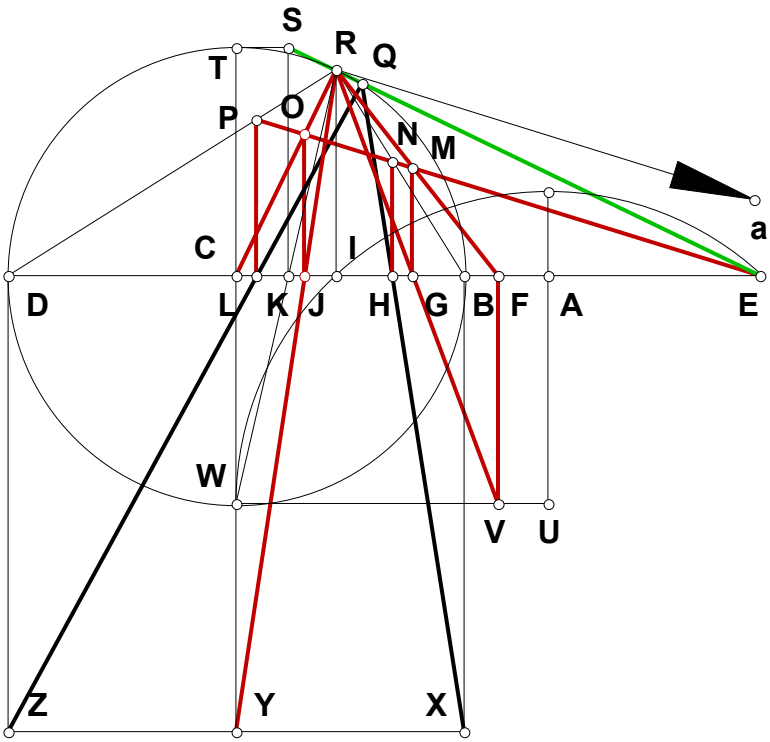


07/24/99 On Gemini Roots

Given N_1, N_2, AB = 1

$AD = AB \times N_1$, $EF = \frac{CE}{N_2}$.

BD =
BC =
CW =
CT =
FV =
AI =
BI =
DI =
IR =
AE =
AC =
ED =
CE =
BE =
EI =
FI =
FG =
EG =
GI =
GM =
Ia =
EL =
BR =
Ba =



BH =
EH =
CI =
JO =
CJ =
JI =
CY =
$\frac{CY}{CW} - \frac{CE}{EF} =$

08/11/99 A Delian Solution

Plate 1

Given N, AB = 1, AG = AB × N.

BG =

AD =

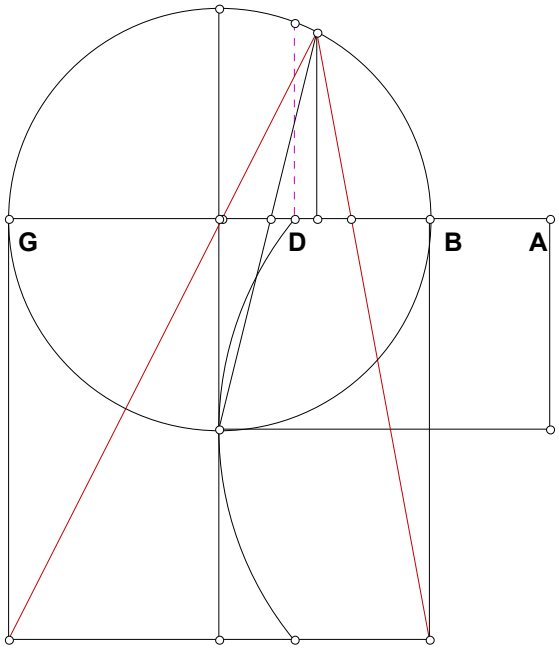


Plate 2

BF =

FG =

AF =

FX =

Mf =

Lf =

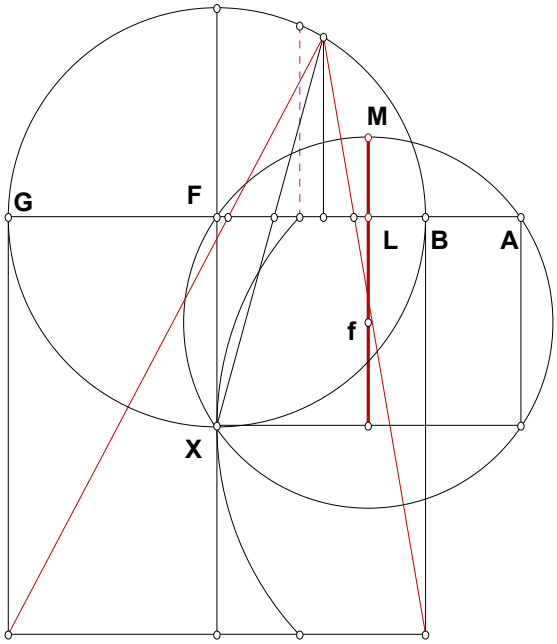


Plate 3

ML =
FL =
Xd =
df =
IX =
Md =
MX =

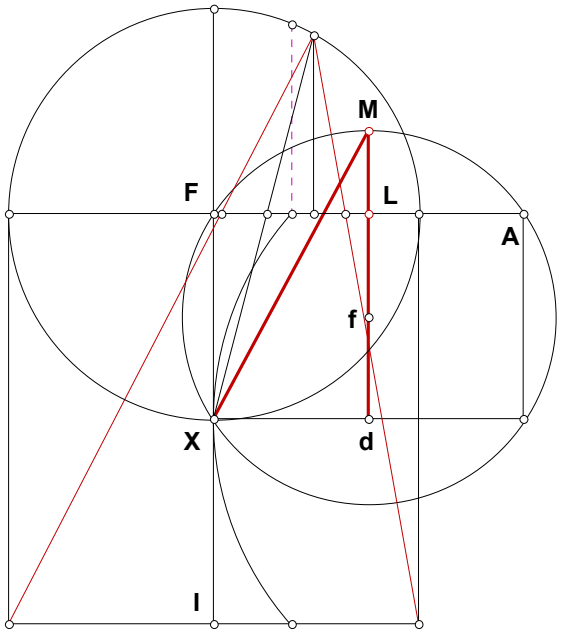


Plate 4

SX =
Lg =
QX =
Fg =
Xg =
Qg =

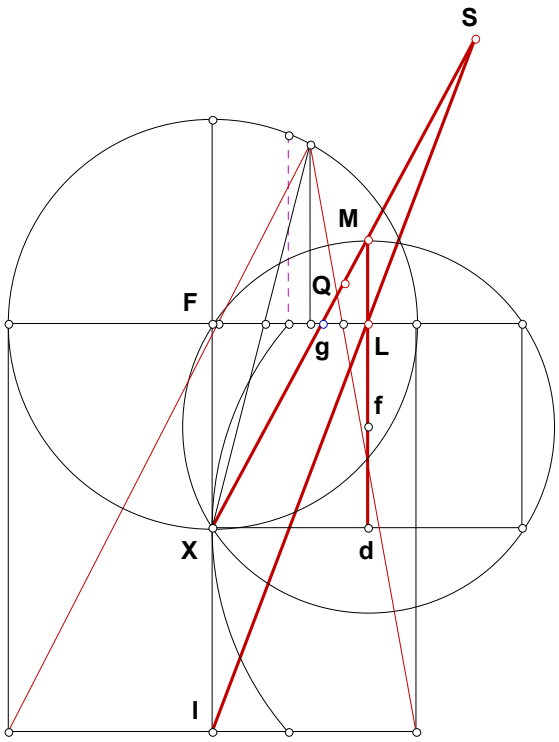


Plate 5

Kg =

GK =

GJ =

GT =

JT =

IJ =

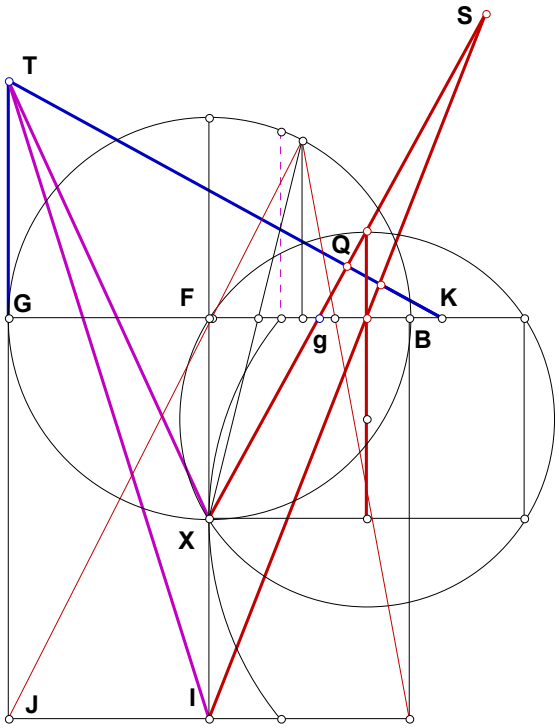


Plate 6

FP =

OP =

KP =

Pi =

Oi =

hi =

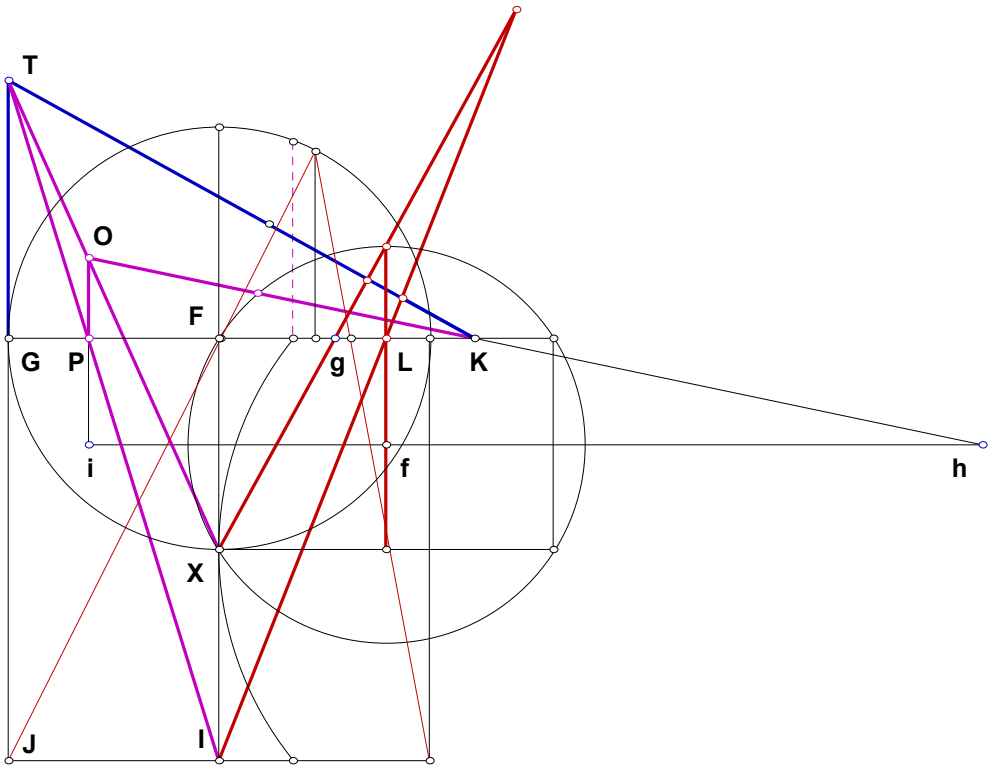


Plate 7

fi =

fh =

KO =

hk =

fk =

Nf =

Nk =

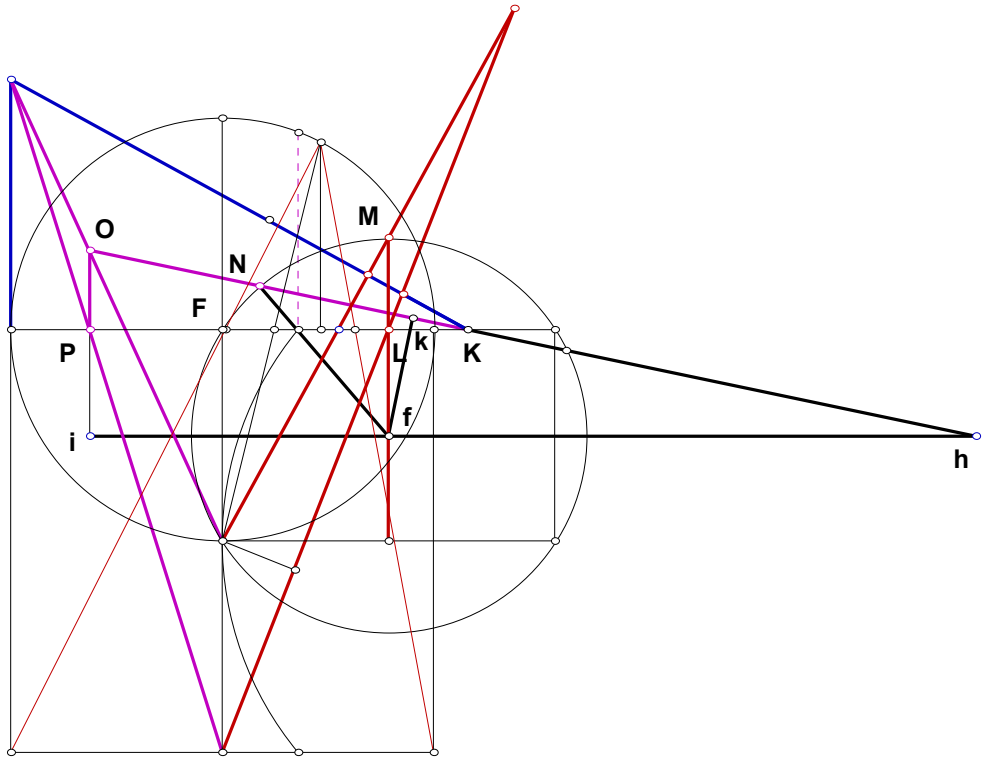


Plate 8

Nh =

Oh =

NO =

KN =

NI =

KI =

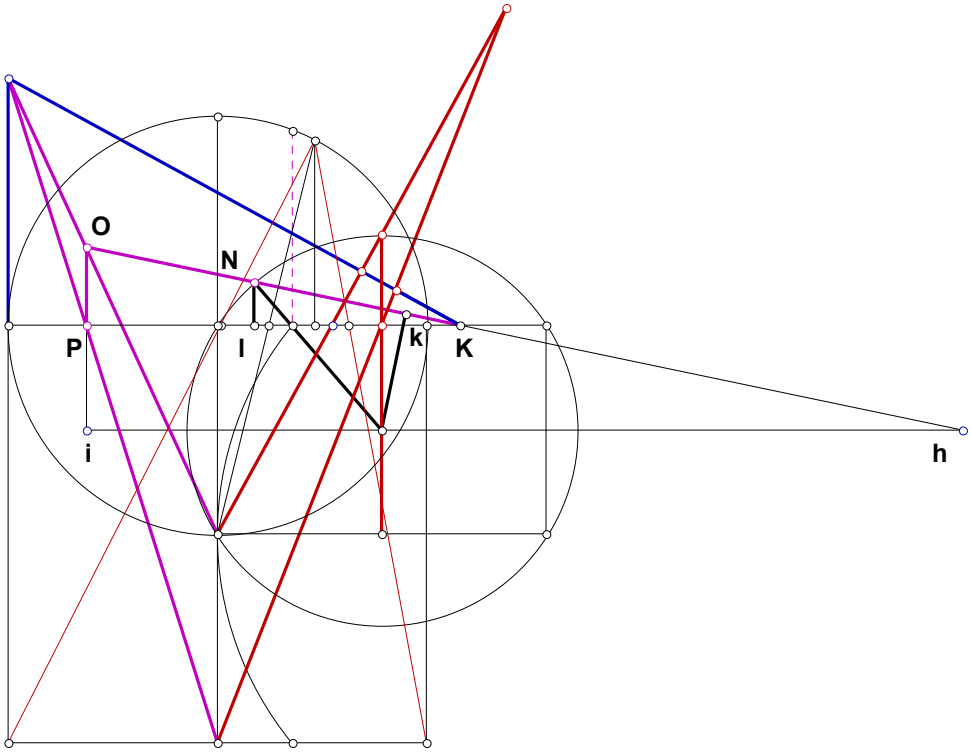


Plate 9

FK =

Fl =

NX =

XY =

Fm =

Km =

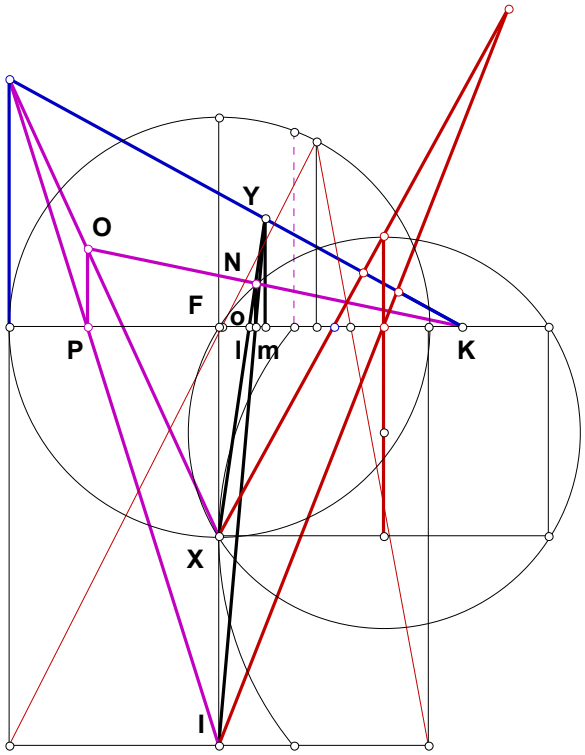


Plate 10

Fo =

Xo =

mo =

Ym =

FI =

IL =

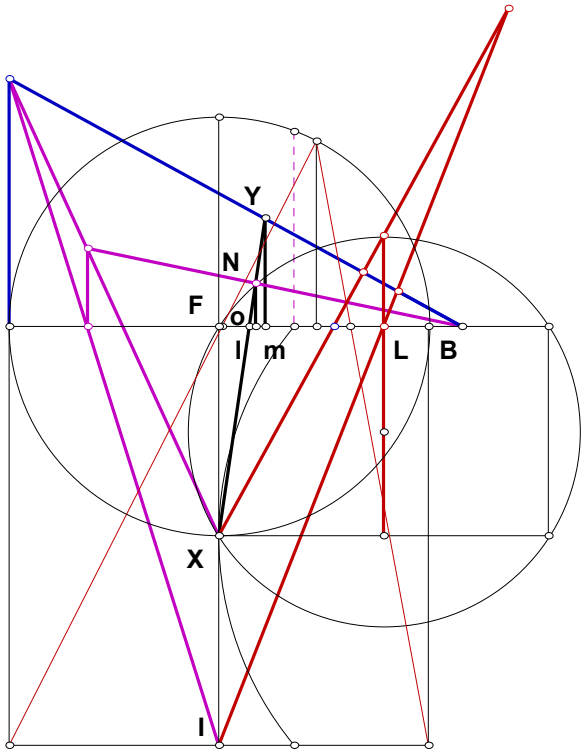


Plate 11

IS =

In=

Xn =

QR =

KT =

KY =

KQ =

RY =

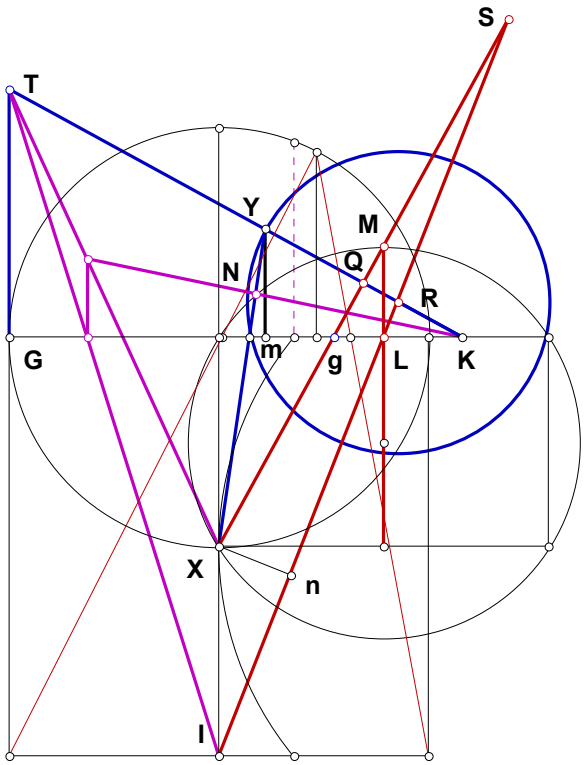


Plate 12

Xd =

dp =

pq =

dq =

Xp =

Op =

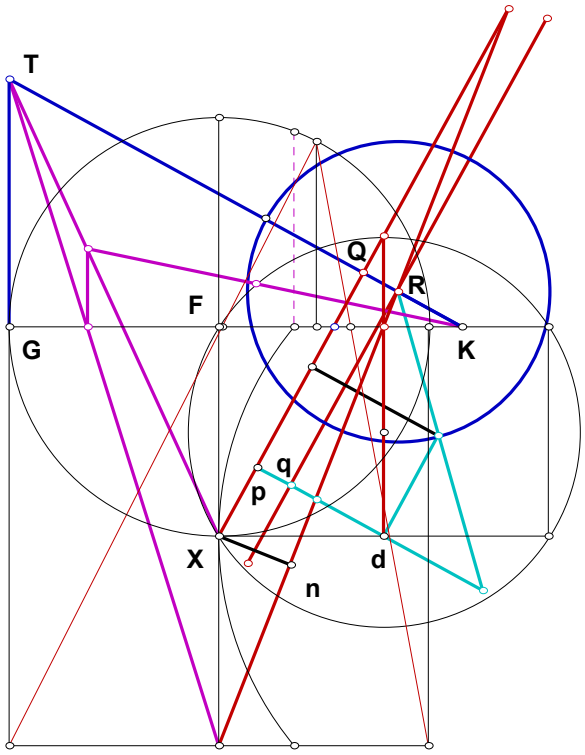


Plate 13

er =

Re =

Rr =

Rq =

Rs =

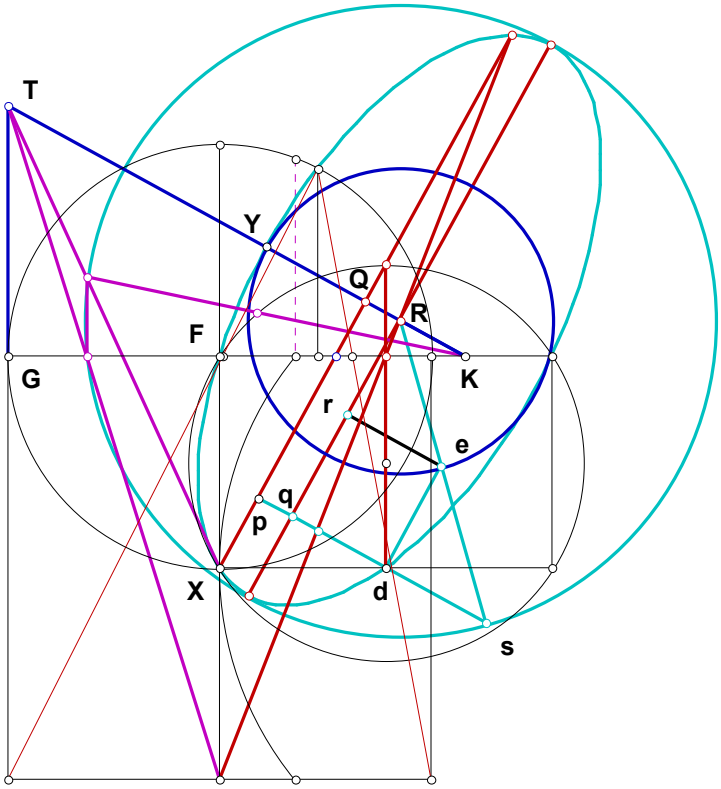


Plate 14

AC =

AE =

BC =

BE =

CE =

EG =

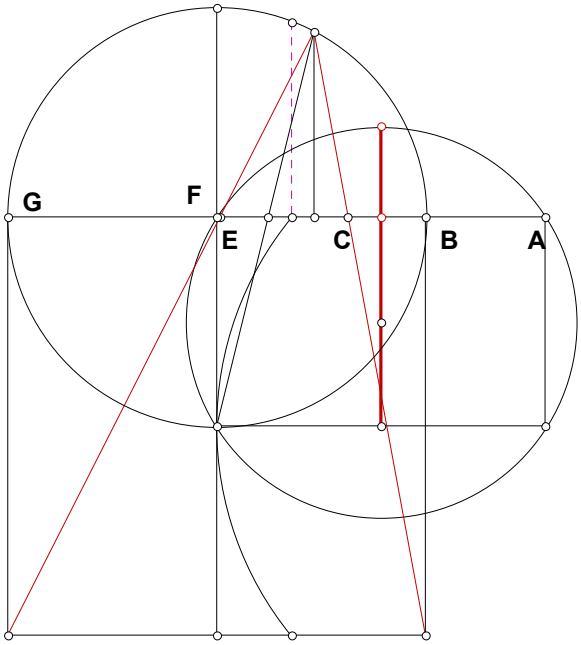


Plate 15

CU =

BU =

GU =

UZ =

UW =

Gg=

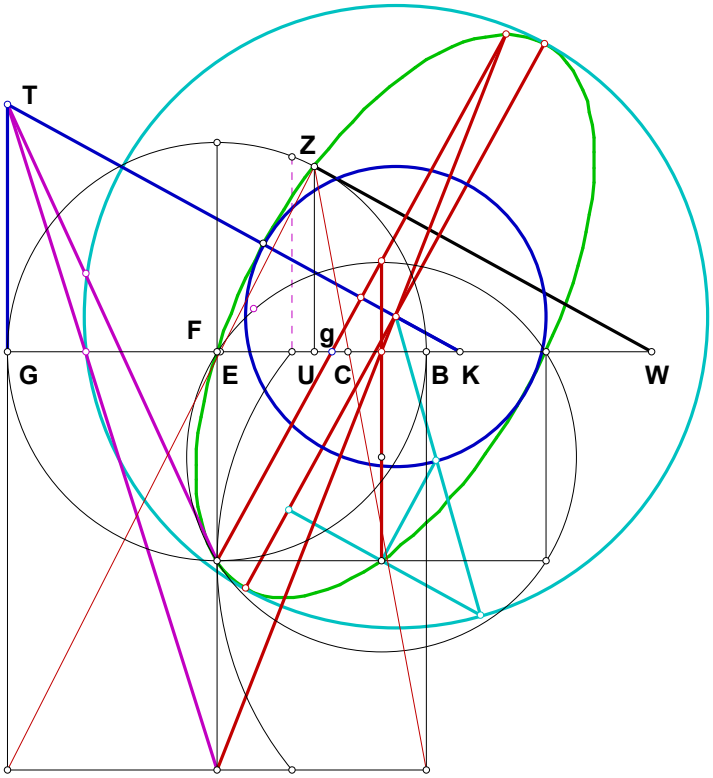


Plate 16

tu =

gt =

Gt =

GW =

Wt =-

tv =

Kt =

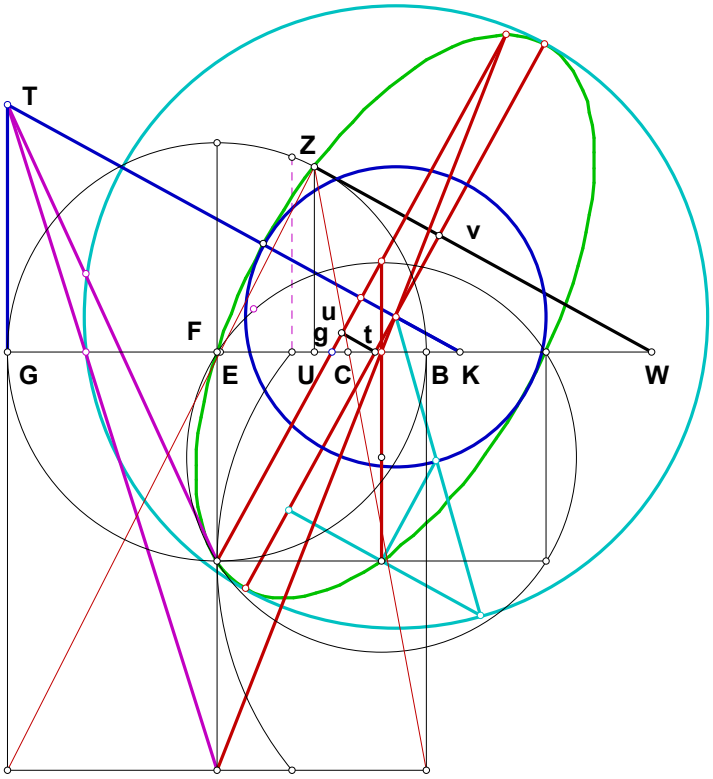


Plate 17

Rt =

Rv =

bc =

Rc =

cv =

Yw =

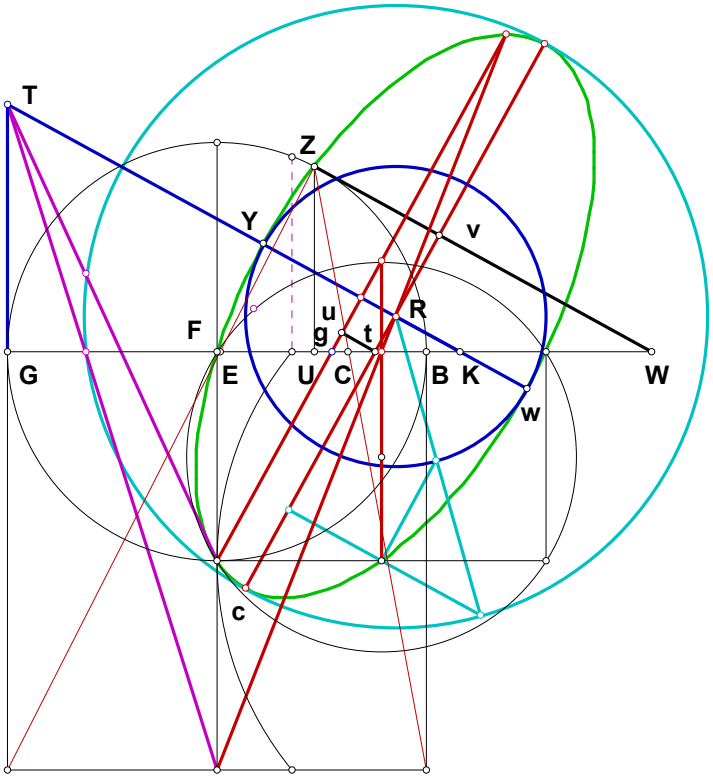
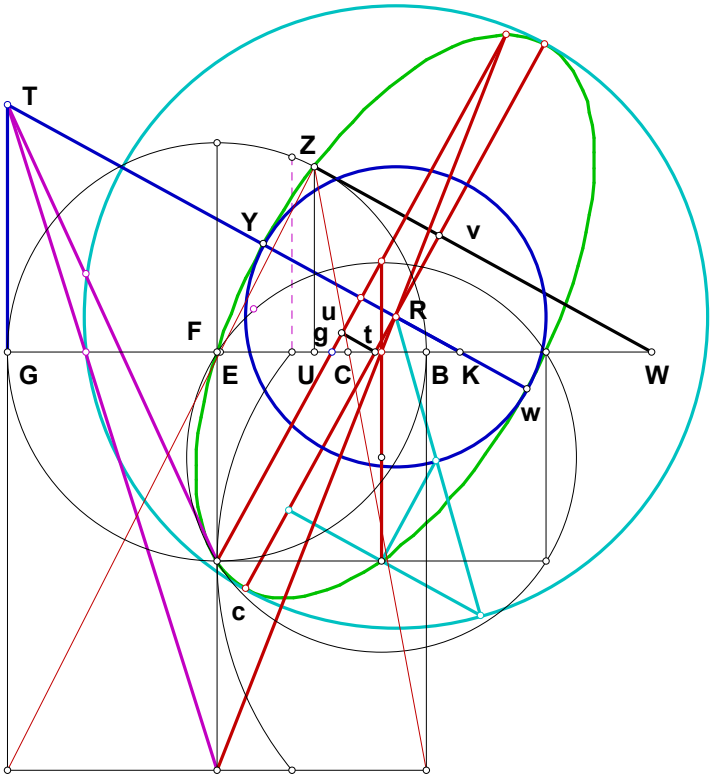


Plate 18

WZ =

Wv =

Zv =